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Corporate Services
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EVALUATION OF THE ARCTIC ENVIRONMENTAL STRATEGY

FINAL REPORT

Project #95/10

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Table of Contents

Page

Executive Summary i
  Background i
  Purpose of Evaluation i
  Evaluation Approach and Issues i
  Evaluation Findings ii

Section 1 - Introduction 1
  Purpose of Report 1
  How this Report is Organized 1
  Purpose of Evaluation 1

Section 2 - Evaluation Approach 2

Section 3 - Evaluation Issues 3

Section 4 - Methodologies Utilized in this Evaluation 4
  Territorial and National Capital Regional Interviews and File Reviews 6
  Literature Review and Expert Interviews 6
  Project Leaders Telephone Interviews 6
  Community Representatives Telephone Interviews 7
  Community Case Studies 8
  Self-Evaluations and Statistical Review 8
  Aboriginal Partners' Evaluation 8

Section 5 - AES Profile: An Overview 9
  Legal Mandate 10
  International Linkages 12

Section 6 - AES Overall: Evaluation Findings 13
  Implementation Status 13
  Implementation Efficiency 17
  Objectives Achievement 23
  Continuing Relevance 28
  Improvements and Alternatives 34
  Lessons Learned about Best Practices and Developing Partnerships 37

Section 7 - Summary of Conclusions and Recommendations 40

Annexes
  Terms of Reference
  Action on Contaminants
  Action on Wastes
  Action on Water
  Action on Environment/Economy Integration

Appendices to the Evaluation Report (English only)

Volume I

Appendix 1: Territorial and Headquarters Interviews and File Reviews

Appendix 2: Literature Review and Expert Panel

Appendix 3: Project Leaders Telephone Interviews
    Annex A: Contaminants Component Projects
    Annex B: Waste Component Projects NWT & Yukon
    Annex C: Water Component Projects NWT & Yukon
    Annex D: CRMP & EAP Projects NWT & Yukon

Appendix 4: Community Representatives Telephone Interviews NWT & Yukon

Volume II

Appendix 5: Community Visits
    Annex A: Carcross Tagish, Yukon
    Annex B: Fort Simpson, NWT
    Annex C: Cambridge Bay, NWT

Appendix 6: Statistical Review and Self-Evaluation Guides

Appendix 7: Aboriginal Partners' Evaluation

Appendix 8: Program Profile

Executive Summary

Background

The AES is a six-year federal initiative launched in April 1991. Its goal is to preserve and enhance the integrity, health, biodiversity and productivity of the Arctic ecosystem for the benefit of present and future generations. The overall budget of $100 million over five years to 1995 was cut and reprofiled over six years to end in 1996/97. DIAND managed $91.3 million of the total budget. The Strategy had four specific action Components and a communications function. The four Components are Action on Contaminants, Action on Waste, Action on Water and Action on Environment/EconomyIntegration. The AES was implemented in cooperation with five Aboriginal Partners and the federal departments of Fisheries Canada, Environment, and Health, as well as several departments of the Yukon Territorial Government and the Government of the Northwest Territories. The Aboriginal Partners are the Council of Yukon First Nations, the Dene Nation, the Métis Nation-NWT, the Inuit Tapirisat of Canada (ITC) and the Inuit Circumpolar Conference (ICC).

The AES also supports Canada's contribution to international cooperation in research and environmental monitoring through the Arctic Environmental Protection Strategy (AEPS), a major initiative to coordinate environmental actions in eight circumpolar nations: Canada, Denmark (Greenland), Finland, Iceland, Norway, Russia, Sweden and the United States. AEPS will become part of the proposed Arctic Council.

Purpose of Evaluation

DIAND has undertaken to submit to Treasury Board an evaluation of the performance of the AES and future options. It assesses the ongoing relevance, performance and effectiveness of the AES and draws lessons learned from the strategy. The evaluation is to provide timely information to assist senior management on future programming activities and priority setting. This is the final report on the findings from that evaluation. Evaluation results are presented for the overall Strategy, with more detail on the four Components in Annexes B to E.

Evaluation Approach and Issues

The evaluation was directed by a Senior DIAND Evaluation Officer in consultation with an Advisory Committee comprising three of the Aboriginal Partners, the DIAND Territorial regional offices and the AES program at headquarters. The Committee developed a unique evaluation approach to improve access and promote skills transfer by linking established southern and northern firms with community-based Aboriginal consultants. The evaluation findings are based on multiple lines of inquiry: reviews in the National Capital, Yukon and NWT regions; a literature review and expert opinion; interviews with project leaders of the AES Components; interviews with community representatives; the Aboriginal Partners Assessment; responses to a Self-Evaluation Guide; and three on-site community case studies.

Five evaluation issues were approved in the Terms of Reference in June 1995:

- *What is the status of implementation of the strategy and its components and to what extent has the implementation been efficient?*
- *To what extent have the Arctic Environmental Strategy and its components accomplished their stated objectives?*
- *Is there a continuing relevance for the strategy and its components?*
- *What improvements/alternatives can be made to the strategy and its components?*
- *What lessons have been learned from the strategy and its components regarding best practices and developing partnerships among stakeholders?*

Evaluation Findings

Implementation Status: Work on the assessment of contaminant levels in fish and wildlife has generally been implemented. Reflecting the state of science internationally, less has been achieved in terms of assessing the impacts on human health. Additional constraints on assessing human health impacts are small population size and the interaction of other factors such as smoking. Significant progress was reported in establishing a base for work on international controls, with praise for Canada's lead on work to establish controls to prevent the entry of persistent organic pollutants (POPs) into the Arctic. The evaluation found that the Contaminants work has placed Canada in a leadership role internationally.

Waste clean-up has commenced and all elements of the workplan have been implemented. As anticipated, the required effort will extend beyond the life of the Strategy. It is believed that the most significant hazardous sites have been identified and assessed. The AES has enabled a good determination of the extent of the waste situation in the northern territories, and departmental efforts have focused toward the clean-up of remaining known hazardous waste sites to meet health, safety and legal liabilities. It is estimated that 20 percent of the volume of known hazardous wastes is still in the process of being cleaned up. The clean up of waste in many northern communities has taken place with AES funding. The evaluation found that much of such clean up occurred early in the life of the Strategy. Due to budgetary and locational considerations, just two of 21 abandoned DEW line sites have been cleaned up.

The AES Water Quality Monitoring Network currently funds 81 water quality stations, the majority of which did not exist prior to the AES. Many water quality area specific studies are in progress. They have generally been implemented as planned and are ongoing as community water quality issues arise. Expansion of the water quantity network was scaled down in the face of budget reductions and increasing costs. Water Quantity Area Specific Studies used a small portion of the AES Water budget and relied heavily on outside organizations. Although the Yukon Water Laboratory was not established, the NWT laboratory was reported to have been upgraded according to plan. It is now used by both territories.

The Environment/Economy Component had three aspects: The Community Resource Management Program (CRMP); the Environmental Action Program (EAP); and the Northern Information Network (NIN). Over half of the CRMP projects sampled for the evaluation were expected to yield plans, although not necessarily in written form, and positive results are still expected. The evaluation encountered widespread praise for the capacity building which has been attributed to CRMP project implementation, and which is seen as a major impact. Some communities have undertaken CRMP projects expected to result in conservation strategies and resource policies, whereas others used CRMP money for local environmental projects without comprehensive plans. EAPs typically involved short term awareness building, and hundreds have been completed. The Northern Information Network has been implemented and its use is expected to increase with accessibility via the Internet.

Implementation Efficiency: The evaluation found the component structure to be generally adequate for the overall strategy, and observed the benefits of greater inter-Component coordination. There is a desire for participants in all Components to be fully apprised of each other's activities.

Organizational efficiency within the Contaminants Component was found to be very good. The Yukon Contaminants Committee was seen as more effective than its NWT counterpart, which was attributed to workshops that increased stakeholder involvement. The Aboriginal Partners, through identifying effective ways of communicating with communities, enhanced efforts in this area. The organizational efficiency of Waste Component activities in the Yukon was also very good. In the NWT, the priority given to meeting legal liabilities was seen to lead to less management flexibility, resulting in a reduced emphasis on specific planning and priority-setting and less involvement of Aboriginal Partners in decision-making. Overall organization within the Water Component was found to be efficient, although interdepartmental coordination and communication with other Components could be improved. The evaluation found the Environment/ Economy Integration Component to be efficient in both regions. It was noted that the absence of dedicated staff inhibited effective community outreach in the Yukon.

Objectives Achievement: Overall, the AES was seen to be one of the federal government's most significant accomplishments to date north of 60°. Many successes were achieved even against a background of government cutbacks. Canada is far ahead of all other countries on northern environmental issues as a direct result of AES work. The overall goals were seen as tangible and the AES was seen as having made a major contribution toward the achievement of all its stated objectives, although some are seen as longer run in nature. AES has increased environmental awareness throughout the North and this should work to ensure the health and well-being of Arctic ecosystems. Significant gains were reported in community awareness and environmental planning. Partnerships and community involvement have enhanced decision making through integrating various interests. The Contaminants work contributed significant achievements internationally.

Continuing Relevance: The evidence points to the AES rationale being as pertinent today as when the strategy commenced. Almost all lines of evidence indicated that the Contaminants objectives remain appropriate. Most observers agreed that the state of science must be advanced to better understand the human health effects of contaminants in the food chain. There was clear agreement that the work of the Waste Component should continue. The goals, however, have evolved over time due to budget constraints. Recent policy initiatives to sharpen the focus of waste activities should enable a more focused approach emphasizing high risk sites. The Action on Water objectives were seen to remain relevant. In addition to maintaining the hydrometric network, there was particular support for maintaining the Water Quality aspects of the program, which tie into Contaminants work and ultimately to human health and safety. The Environment/Economy objectives were found to be appropriate, but it must be conceded that they should not take priority over issues of human and environmental health.

Most evidence pointed to the beneficial aspects of the linkages between the water quality program and contaminants, wastes and some CRMP projects. Aboriginal representatives viewed the AES as an example of the holistic approach to problems for which they have long argued. The AES was seen as a promising example of future programs and a model for program delivery in the North.

Evaluation participants were concerned about the consequences of sunsetting the AES. Regional officials suggested that the level of activity without AES funding could be below the threshold necessary to ensure the integrity of the Arctic ecosystems.

Best Practices and Lessons Learned: Participants in this evaluation expressed clear and complementary views about the purpose of the partnerships formed under the AES. The Aboriginal Partners' evaluation refers to the "synergies of partnership". Community representatives and Aboriginal organizations called this a true and meaningful partnership, and many participants inside and outside government said that the AES had, in the North, bolstered the credibility of DIAND in particular and the federal government in general. All stakeholders saw the results of partnerships as a recognition that success is not attainable without the full involvement of all levels of government and Northerners in decision making. Partnerships under the AES ensured program relevance and a focus on both community concerns and scientific inquiries. Some individuals saw partnerships as a means to empower decision-making bodies and provide balanced information to support informed decisions. The legacy of these partnerships will be to create the capacity to carry on when DIAND is no longer there.

Capacity building, the quality of the science and the establishment of the Centre for Nutrition and the Environment of Indigenous Peoples (CINE) were also seen as strengths, as was the high visibility of the AES and the extent to which work under the strategy fed into the AEPS and put Canada in a leading role.

The evaluation found areas where improvements were possible in coordination across Components and accountability.

SUMMARY OF RECOMMENDATIONS

Pages 40 to 43 of the report summarize findings and conclusions from the analysis presented in the Component Annexes, with the following recommendations:

1: **DIAND should take the necessary steps to continue work priorities and partnerships which commenced under the Arctic Environmental Strategy;**

2: **Any continuation of the work commenced under the AES should take place under a revised format: efficiencies can be attained by consolidating overlapping aspects of the research components and streamlining administrative and committee structures;**

3: **To ensure DIAND's ability to meet its regulatory responsibilities and maintain Ministerial accountability, the Wastes Inventory of Sites should be maintained in an up-to-date fashion and periodically audited to ensure its accuracy;**

4: **The communication of scientific findings and health information to northern Aboriginal communities should reflect an understanding of the community and ensure the use of clear, plain language;**

5: **Any future iteration of the AES should place a strong emphasis on developing a results-based performance measurement regime and related data collection and implementation systems for management and accountability purposes;**

6: **DIAND should continue to support a coordinated domestic approach on Northern environmental issues to ensure Canada a strong and credible presence internationally; and**

7: **The partnership approach demonstrated through the AES should form the foundation for Canada's contribution to international efforts aimed to enhance the circumpolar environment.**

Section 1 - Introduction

Purpose of Report

This report presents the findings of an evaluation undertaken by the Departmental Audit and Evaluation Branch (DAEB) of the Department of Indian Affairs and Northern Development (DIAND) Arctic Environmental Strategy (AES). It includes a description of the strategy, a summary of the evaluation approach and methodology, evaluation findings and options for the future.

How this Report is Organized

The results of the evaluation are presented in this report from the perspective of the Strategy as a whole. Summary evaluation results for each of the four Strategy components are appended in Annexes B to E. Those annexes are in turn a synthesis of multiple sources of evidence investigated to assess the Strategy's impacts. Reports on each line of evidence used as part of the evaluation are contained in appendices under separate cover.

Purpose of Evaluation

The Department of Indian and Northern Affairs (DIAND) has undertaken to submit to Treasury Board an evaluation of the performance of AES and options for the future. As a result of decisions taken pertaining to the Federal Budget, this evaluation provides timely information to assist senior management on future programming activities and priority setting. The evaluation assesses the ongoing relevance, performance and effectiveness of the AES and recommends any necessary improvement or alternatives to the existing strategy. The Terms of Reference for the evaluation are provided in Annex A.

Section 2 - Evaluation Approach

The evaluation was directed by a Senior Evaluation Officer from the Departmental Audit and Evaluation Branch (DAEB) in conjunction with an Advisory Committee comprised of one representative from each of three of the five AES Aboriginal Partners, and one representative from each of the DIAND Territorial regional offices and the program at headquarters. The Committee was chaired by DAEB.

At the request of the Advisory Committee, the evaluation utilized a unique approach linking established southern and northern firms with local Aboriginal consultants in order to enhance access and the authenticity of the findings, as well as to promote the transfer of evaluation skills and knowledge. Local Aboriginal consultants were involved in the conduct of the three community case studies undertaken for the evaluation, and an Aboriginal firm undertook the project and community interviews in the Yukon. A northern firm, involving Aboriginal researchers as part of the project team, undertook the project and community interviews in the NWT. Where possible and relevant, efforts were made to ensure that interviews conducted with AES project participants and community representatives took place in the Aboriginal language of the interviewee. In keeping with DAEB standard practice, the three northern communities participating in community case studies were afforded the opportunity to comment on their respective case study reports.

Section 3 - Evaluation Issues

Five evaluation issues were approved in the Terms of Reference (Annex A) in June 1995:

Issue 1: *To what extent have the Arctic Environmental Strategy and its components accomplished their stated objectives?*

Issue 2: *What is the status of implementation of the strategy and its components and to what extent has the implementation been efficient?*

Issue 3: *Is there a continuing relevance for the strategy and its components?*

Issue 4: *What improvements/alternatives can be made to the strategy and its components?*

Issue 5: *What lessons have been learned from the strategy and its components regarding best practices and developing partnerships among stakeholders?*

Section 4 - Methodologies Utilized in this Evaluation

The evaluation findings are based on multiple lines of inquiry: reviews in the Yukon, NWT and National Capital regions; a literature review and expert opinion; discussions with project leaders of the AES components; community representatives telephone interviews; an assessment conducted by the Aboriginal Partners, a Self-Evaluation Guide, and three on-site community case studies.

The evaluation was conducted using a cross-sectional approach, examining the Strategy as a whole and enabling specific findings to be made regarding each of the four AES components and the projects it delivered. Multiple lines of evidence were employed in the evaluation methodology to deal with the decentralized delivery system of the AES, the large number of participants including federal departments, Aboriginal Partners, territorial governments and communities, and the general difficulty inherent to circumscribing the effects of environmental programs. Findings for this evaluation were supported by two or more lines of evidence. The utilization of a variety of sources corroborates and validates the evaluation findings. The concurrence of multiple lines of evidence serves to increase confidence in the validity of findings. Table 1 describes each line of inquiry used along with the level of coverage achieved. It is followed by a brief description of each source. Detailed findings appear in the supporting appendices published as companion documents to this evaluation.

Table 1: AES Evaluation Lines of Evidence and Levels of Coverage

Lines of Inquiry	Description and Intent	Level of Coverage[1]
Territorial and National Capital Region (NCR) Reviews	These reviews involved interviews with officials from: the AES Aboriginal Partners; DIAND Headquarters and the Yukon and NWT regional offices; the Yukon and NWT governments; headquarters and regional offices of Health Canada, Environment Canada and Fisheries and Oceans Canada; and other key stakeholders.[2] As part of the exercise, files were reviewed to obtain evidence on organizational structure, planning and priority setting, project selection processes, coordination and communications, tracking of implementation and objectives achievement.	A total of 83 persons were interviewed in this line of inquiry. This represents a response rate of 97%.
Telephone interviews with community leaders	A number of northern community officials (both Aboriginal and non-Aboriginal) were interviewed for their perspectives on the AES and its implementation.	47 officials were interviewed (26 NWT and 21 Yukon), representing an overall response rate of 77%.
Telephone interviews with project leaders	Interviews were conducted with project leaders responsible for projects funded under each of the four AES Components. Projects were stratified by activity and regions and the samples were then drawn randomly.	224 project leaders were interviewed, representing an overall response rate of 90%.
Community Case Studies	Three communities participated in on-site case studies. A review of project files was also conducted in the offices of DIAND and some recipient organizations.	Interviews were held with AES project leaders, and both Aboriginal and non-Aboriginal community representatives.
Literature and Document Review	This aspect of the evaluation was designed to provide additional information on the history, theories, approaches and issues for discussion with respect to Canada's policy toward the Northern environment.	An extensive review of academic and professional publications and government reports using both library and CD-ROM sources, including the views of eight experts.
Project Self-Evaluation Guide	Quantitative data for the Waste, Water and Environment/ Economy Components projects included in the sample of project telephone interviews were collected by program administrators. The purpose of this exercise was to gather details from program files to provide additional information for the evaluation.	A total of 159 were completed, representing a response rate of 86%. Overall, this sample represents 43% of Water Area Specific studies, 14% of Environment/Economy projects, and 8% of all Waste projects undertaken by the respective programs.

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[1] It would not be accurate to total the numbers for all lines of evidence, because some individuals participated in interviews for more than one component and for two or more lines of inquiry.

[2] The third-party organizations included CINE, the Yellowknife Chamber of Commerce, the Canadian Arctic Resource Council, Yukon Chamber of Mines, Yukon Conservation Society, Yukon Tourism Industry Association, Yukon Water Board, and Yukon College.

Territorial and National Capital Regional Interviews and File Reviews

A total of 83 officials were interviewed between December 4, 1995 and February 1, 1996, mostly in person. About half the participants were from DIAND (Executive, Senior Management and Operational officials from Headquarters and the Yukon and NWT regional offices). The other half included nine executive and operational officials from the five AES Aboriginal Partner organizations, eight officials from the Yukon and NWT governments, and 16 officials from headquarters and regional offices of Health Canada, Environment Canada and Fisheries and Oceans Canada. Also interviewed were representatives of CINE, the Yellowknife Chamber of Commerce, the Canadian Arctic Resource Council, Yukon Chamber of Mines, Yukon Conservation Society, Yukon Tourism Industry Association, Yukon Water Board, and Yukon College. The response rate was nearly 100%.

Generic file reviews of AES coordination and the Action on Waste, Water and Environment/Economy components were conducted in the DIAND Whitehorse and Yellowknife regional offices. Headquarters generic file reviews were undertaken for the Action on Contaminants, Water and Waste components as well as overall AES coordination. The purpose of the file reviews was to search for evidence on organizational structure, planning and priority setting, project selection processes, coordination and communications, tracking of implementation and objectives achievement.

The results of these regional reviews are contained in Appendix 1.

Literature Review and Expert Interviews

Academic and professional publications and government reports were reviewed using both library and CD-ROM sources to provide background information on the history, theories, approaches and issues for discussion with respect to Canada's policy toward the Northern environment.

The findings from this review of literature and documents were synthesized and combined with the results of eight expert interviews, and the final report is found in Appendix 2.

Project Leaders Telephone Interviews

Telephone interviews were conducted with a sample of community representatives or science managers responsible for projects funded under each of the four AES components. The interviews were designed to elicit these individuals perspectives on the evaluation issues. The projects were stratified by activity and regions and the samples were then drawn randomly.

Contaminants Component

A random sample was drawn on the basis of accepted and non-accepted applicants. Of 55 projects sampled, interviews were held with 39 individuals, representing 53 (39 funded and 14 non-funded). As well, headquarters files and annual research summaries were reviewed to augment interview results. The full results appear in Appendix 3, and are integrated into Annex B.

Waste Component

A random sample of waste component projects was selected on the basis of project status (inventoried, assessed, or cleaned-up). A total of 108 waste component projects were selected out of more than 1200 projects in the DIAND database: 57 in the NWT; and 51 in the Yukon Territory. Ninety-eight interviews were conducted, 45 in the NWT and 53 in the Yukon. The response rate was about 91 percent, and, adjusting for multiple projects for one contact, would be somewhat higher. The report on this study appears in Appendix 3, and the results are integrated into Annex C.

Water Component

A random sample of 16 water quality and quantity projects was selected for each northern region. Following interviews with the 32 project leaders, follow-up interviews were conducted with other community organization representatives where appropriate, in order to gather additional evidence as recommended by the project leader. In all 48 interviews were conducted for the 32 water projects. The report on this study appears in Appendix 3, and the results are integrated into Annex D.

Environment and Economy Integration Component

A random sample of funded Environmental Action Program (EAP) projects and both funded and unfunded Community Resource Management Plan Program (CRMP) projects was selected based on region and program type. The sample included 30 CRMP projects and 41 EAP projects with 60% coming from the NWT. There was a 67 percent response rate. The report on this study appears in Appendix 3, and the results are integrated into Annex E.

Community Representatives Telephone Interviews

A sample of representatives from randomly drawn communities included First Nation Chiefs, municipal government members, Métis Locals, and various officials from local organizations (e.g., Hunters and Trappers Associations and Tourism Bureaus). These individuals were interviewed for their overall perspective on the AES. Both Aboriginal and non-Aboriginal community organizations were included, and the response rates were 66 percent in the NWT and 95 percent in the Yukon.

Community Case Studies

Three community visits took place in January, 1996. The communities recommended by the Evaluation Advisory Committee were Carcross-Tagish in the Yukon, and, in the Northwest Territories, Fort Simpson and Cambridge Bay. Interviews were conducted with regional DIAND staff regarding the specific projects conducted in these communities in order to familiarize the evaluation team with the nature of the projects and to gather a departmental perspective about their performance. On-site interviews for these three case studies included senior officials, community members and AES project coordinators. A small number of interviews took place with non-Aboriginal representatives of the outside community.

In addition to interview evidence, file reviews of the three communities' projects were conducted at the DIAND Yukon and Yellowknife regional offices and in the communities. The file reviews corroborated and augmented evidence gathered from interviews. More specifically, files contained project financial and progress reports, time lines for completion, correspondence, and other background material. Full reports on the three community case studies are found in Appendix 5.

Self-Evaluations and Statistical Review

Departmental managers for the Action on Environment/Economy, Action on Water and Action on Waste components were requested to participate in filling out self-evaluation guides for a sample of projects. 159 of 183 guides were completed and returned. This represents a 100% response rate for Environment/Economy and Water projects and a 75 percent response rate the Waste component. The project file review of the Contaminants component was undertaken by consultants in conjunction with the project leader interviews. A random sample was stratified by major categories of activities for each component and by each region. Statistical profiles for each component were developed which present the status of component outputs as of 1994/95. Detailed information can be found in Appendix 6.

Aboriginal Partners' Evaluation

The Aboriginal Partners undertook their own collective evaluation of the AES. Concern was that the other lines of inquiry would be overly quantitative and technical and might not adequately capture evidence rich in qualitative and anecdotal information. The report on this evaluation can be found in Appendix 7.

Section 5 - AES Profile: An Overview

The Arctic Environmental Strategy (AES) is a six-year initiative launched by the federal government in April 1991 as part of the *Green Plan* following Cabinet authorization on February 20, 1991. Its goal is to preserve and enhance the integrity, health, biodiversity and productivity of the Arctic ecosystem for the benefit of present and future generations. The creation of the AES was a result of more than 18 months of discussions with Northerners - native organizations, business groups, the territorial governments, other concerned interest groups and other government departments. Formal consultations identified special Arctic environmental issues and concerns requiring immediate attention. The AES had an original overall budget of $100 million over five years to 1995, $91.3 of which was to be managed by DIAND. As a result of *Green Plan* cuts, the budget was cut and reprofiled over six years to end in 1996/97.[3] The AES consists of four specific action components and an overall communications function. The components are Contaminants, Waste, Water and Environment/Economy Integration. The distribution of DIAND funding by component over the term of the AES is presented in Table 2.

Table 2: AES DIAND Resource Levels (Millions)

	1991\92	**1992\93**	**1993\94**	**1994\95**	**1995\96**	**1996\97**	**Total**
Waste	1.96	4.370	6.926	6.833	6.487	1.538	28.114
Water	1.67	3.328	4.343	4.002	2.620	2.432	18.395
Contaminants	3.147	4.324	7.168	6.980	3.824	4.038	29.481
Environment/ Economy	0.97	1.458	2.180	2.100	1.198	1.218	9.124
Communications	0.07	0.18	0.25	0.220	0.146	0.112	0.978
Total	**7.817**	**13.66**	**20.930**	**20.288**	**14.34**	**9.338**	**86.092**
Reprofiled	0	-2.395	-2.007	+0.923	+1.505	+2.302	+0.258
Proposed Cut					-2.1	-2.960	-5.059

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[3] A detailed breakdown of the budget is provided in Section 4 of Appendix 8, *Program Profile*.

Section 5 - AES Profile: An Overview

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Reprofiled	0	-2.395	-2.007	+0.923	+1.505	+2.302	+0.258
Proposed Cut					-2.1	-2.960	-5.059

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[3] A detailed breakdown of the budget is provided in Section 4 of Appendix 8, *Program Profile*.

The unique nature of each AES component led to the development of individual management and decision-making structures, which, from the beginning, emphasized partnership creation. Although the AES is a DIAND initiative, the programs are implemented in co-operation with the five Aboriginal Partners' Organizations, non-government organizations, the territorial governments and other concerned federal departments, most notably the Department of the Environment (DOE), Department of Health Canada (DHC) and Fisheries and Oceans (DFO).

The five Aboriginal Partners' organizations represent the interests of First Nations, Inuit and Métis communities in the north. These are the Council of Yukon First Nations, the Dene Nation, the Métis Nation - NWT, the Inuit Tapirisat of Canada (ITC) and the Inuit Circumpolar Conference (ICC).

Management for the AES and each component is achieved through a committee structure. The most senior committee is the AES Partners' Committee which involves DIAND headquarters and territorial Directors and representatives from the five Aboriginal Partners. DIAND Headquarters provides administrative support. Chart 1 illustrates the AES management structure and linkages among the components. Further details can be found in Appendix 8.

AES Action Plan

Goal: To preserve and enhance the integrity, health, biodiversity, and productivity of the Arctic ecosystem for the benefit of present and future generations.

Supporting Objectives:

- To ensure the health and well-being of Arctic ecosystems;
- To provide for the protection and enhancement of environmental quality and sustainable utilization of resources, including their use by indigenous people;
- To ensure that indigenous peoples' perspectives, values and practices are fully accommodated in the planning, development, conservation and protection of the Arctic region;
- To ensure better decision making through the integration of local, regional, national and international interests as part of new legal, constitutional and cooperative arrangements; and,
- To develop international agreements and arrangements to use, conserve and manage resources and protect the circumpolar Arctic environment.

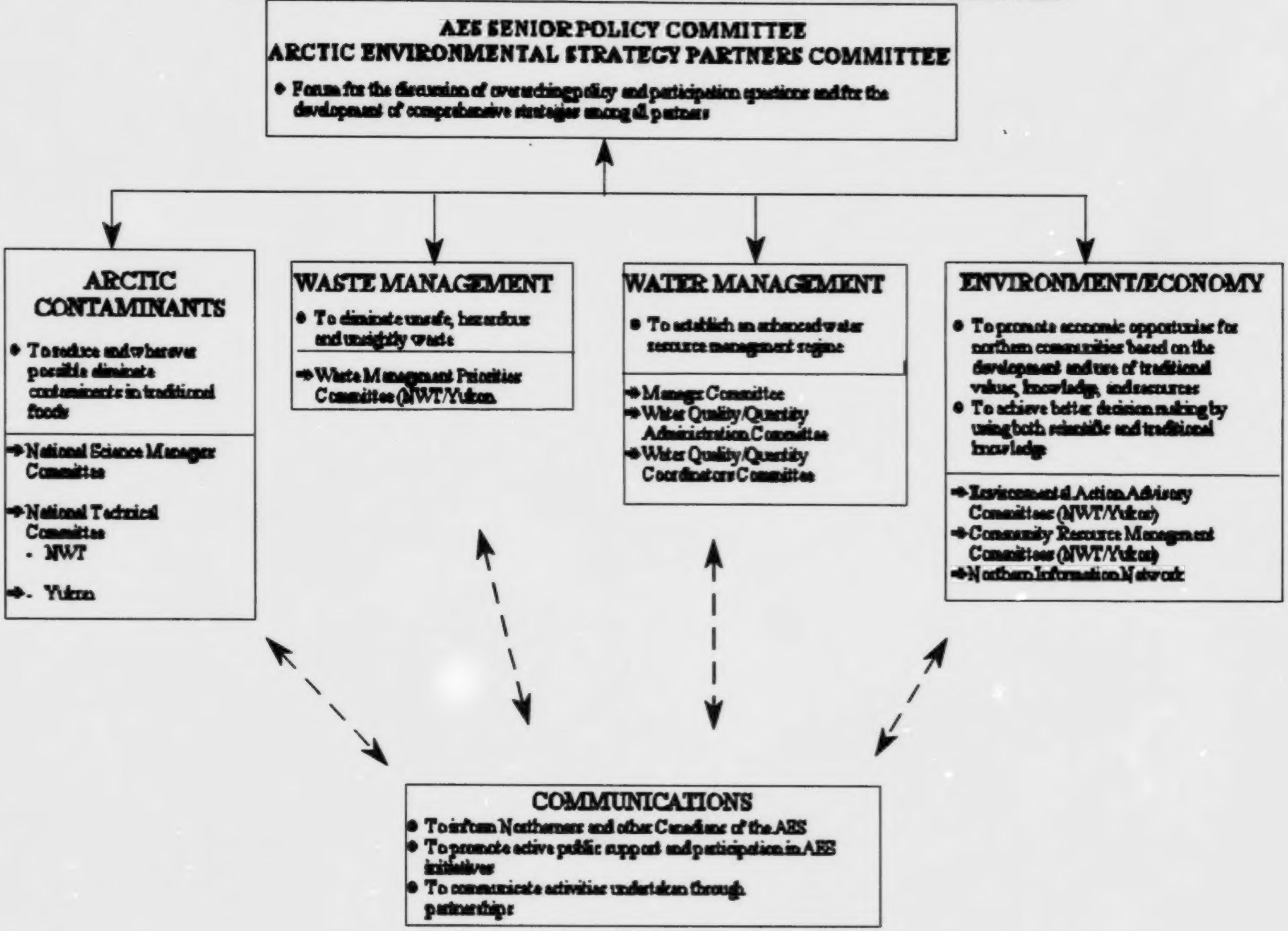
Legal Mandate

The *Department of Indian Affairs and Northern Development Act, 1970* defines the scope of DIAND's responsibilities in the North. This includes the support of balanced development of the North through natural resource management, protection and management of the environment (including Arctic seas), fostering of economic and employment opportunities for Northerners, funding of social and cultural programs, fostering political development and coordinating scientific studies, federal policies and programming.

These responsibilities are further defined by the Northern Political and Economic Framework as developed in 1987, through which the Northern Affairs Program is required to implement each Northern land claim and self-government agreement; work with Northern governments and Native people to further the political evolution of the territories; protect and enhance the Northern environment; support sustainable economic development; and foster international Arctic cooperation.

Under the *Northwest Territories Waters Act* and *the Yukon Waters Act*, DIAND is "to provide for the conservation, development and utilization of the waters in a manner that will provide the optimum benefit for all Canadians and for the residents of the Northwest Territories in particular."

CHART 1: ARCTIC ENVIRONMENTAL STRATEGY – OVERVIEW OF COMPONENTS, LINKAGES, AND PRINCIPAL MANAGEMENT AND TECHNICAL COMMITTEES


AES SENIOR POLICY COMMITTEE
ARCTIC ENVIRONMENTAL STRATEGY PARTNERS COMMITTEE
• Forum for the discussion of overarching policy and participation questions and for the development of comprehensive strategies among all partners
ARCTIC CONTAMINANTS
• To reduce and wherever possible eliminate contaminants in traditional foods
➔ National Science Managers Committee
➔ National Technical Committee
- NWT
➔ - Yukon
WASTE MANAGEMENT
• To eliminate unsafe, hazardous and unsightly waste
➔ Waste Management Priorities Committee (NWT/Yukon)
WATER MANAGEMENT
• To establish an enhanced water resource management regime
➔ Managers Committee
➔ Water Quality/Quantity Administration Committee
➔ Water Quality/Quantity Coordinators Committee
ENVIRONMENT/ECONOMY
• To promote economic opportunities for northern communities based on the development and use of traditional values, knowledge, and resources
• To achieve better decision making by using both scientific and traditional knowledge
➔ Environmental Action Advisory Committees (NWT/Yukon)
➔ Community Resource Management Committees (NWT/Yukon)
➔ Northern Information Network
COMMUNICATIONS
• To inform Northerners and other Canadians of the AES
• To promote active public support and participation in AES initiatives
• To communicate activities undertaken through partnerships

International Linkages

The AES, primarily through contaminants activities, strives to achieve a Canadian presence in international fora and to support international cooperation in research and environmental monitoring of long-range transported contaminants. One main goal of the Contaminants workplan is the establishment of international controls through agreements with source countries and cooperation with other countries in the circumpolar community.

The Arctic Environmental Protection Strategy (AEPS) is a major initiative to coordinate the environmental actions of circumpolar nations. The AEPS is a plan for regional cooperation among those countries to provide for the protection, enhancement and restoration of the Arctic environment and the sustainable utilization of natural resources. The eight participating circumpolar countries include Canada, Denmark (Greenland), Finland, Iceland, Norway, Russia, Sweden and the United States. Ultimately work under AEPS is designed to support the achievement of agreements through the Arctic Council, comprised of Ambassadors from each participating country. DIAND's AEPS Implementation Unit in its Environment and Renewable Resources Branch supports the work of Canada's Ambassador to the Arctic Council and the creation of the Arctic Council Secretariat.

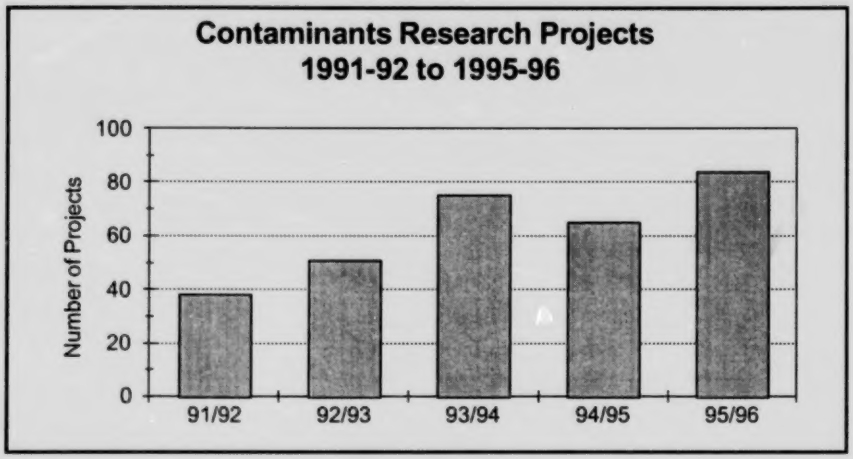
The AEPS working groups include the Arctic Monitoring and Assessment Program (AMAP) and the Indigenous Peoples Advisory Committee to Senior Arctic Affairs Officials. Canadian efforts also contribute to work done under the United Nations Economic Commission for Europe (UNECE), the Organization for Economic Cooperation and Development (OECD) and the International Atomic Energy Agency (IAEA).

AMAP gathers detailed scientific data on levels and effects of pollutants in all components of the Arctic ecosystem. The AES in general and the Contaminants Component in particular have a mandate to provide information to support Canada's policy position in both AMAP and the AEPS.

Section 6 - AES Overall: Evaluation Findings

Implementation Status

The purpose of this section is to present evaluation findings regarding the implementation status of the AES and its components. The extent to which implementation occurred and any deviations which took place from what was originally planned is also presented. Specific details of these findings are presented in Annexes B through E.



- ***extent to which implementation has occurred***

The evidence from most sources was that implementation of the **Contaminants Component** had occurred as originally planned. It was suggested that the Science Managers' Committee steered a "living plan" with work priority areas evolving as new information emerged.
Since 1991, 108 research projects have been undertaken, of which some are recurring and go beyond one year. The chart at the right presents the annual distribution of contaminant projects undertaken. Of these projects, 26% dealt with human health, 24% with contaminant sources, pathways and fate, 21% focused on ecosystem uptake and effects, and 20% were devoted to international activities, communications and coordination.

Based upon a random sample of 39 contaminant projects, 90% extended beyond one year and almost one quarter had a duration extending the entire life of the program. Within the sample, 21% of the projects have been completed and 79% are still ongoing. The average duration of sampled contaminant research projects was 3.4 years.

Work on the assessment of contaminant levels in fish and wildlife has generally been implemented according to plan. This work formed the basic thrust of the program in the early years and created a large volume of information. Assessing impacts on human health has proven to be more difficult. This reflects the limited state of knowledge internationally about long term chronic and inter-generational effects on human health from persistent contaminants present in the food chain.

Greater progress was reported in establishing a base for work on international controls, with praise for Canada's lead on work to establish controls to prevent the entry of persistent organic pollutants (POPs) into the Arctic. Regional officials and Aboriginal Partners noted the importance of these achievements.

The Centre for Nutrition and the Environment of Indigenous Peoples (CINE) was established with AES funds. It was estimated that CINE is currently undertaking research involving some 40 northern communities. A number of regional officials and Aboriginal Partners cited the helpfulness of this centre in getting food analyzed. Some participants in the case studies acknowledged participating in CINE-sponsored community surveys.

For the **Waste Component**, clean-up has commenced, and, as originally anticipated, the required effort will extend beyond the life of the current strategy. Cost estimates varied widely for clean-up of remaining known hazardous waste sites just to meet health, safety and legal liabilities. Implementation in the Yukon was seen as having proceeded as planned, but not in the NWT. Risk level, ability to manage risk and cost estimates form the foundation for planning and priority setting, and community representatives were involved according to plan in the Yukon region. Table 2 presents the Action on Waste inventory of sites as of 1995/96. This table shows the number of sites inventoried, assessed, cleaned-up and identified as requiring no remediation efforts. As such, the data are representative of outputs under this component.

Table 2: Inventory of Waste Sites

Type of Activity	NWT	Yukon	Total
Assessed: contravening *CEPA* or *Fisheries Act*	12	5	17
Assessed: Sites with physical or chemical hazards without act contravention	48	8	56
Site requiring assessments to determine if there are hazards	17	198	215
Sites considered non-hazardous and not needing remediation	264	217	481
Sites remediated	173	304	477
Total	514	732	1246

A sample of 30 projects within each category of activities (cleaned-up, assessed, and inventoried) were analyzed as part of the evaluation. After a review of the sample by program officials, this sample was augmented with the six largest projects in the NWT. According to this sample, 61 percent of all waste projects have been completed, 10 percent were ongoing and 28 percent had no action taken as of the survey date. Within the sample of projects categorized as having been cleaned up on the database, the evaluation found that clean-up had not yet occurred at five sites. Three of the sampled sites listed as having been assessed were still awaiting assessment and 19 of the "inventoried" sites remained to be officially inventoried.

Other sources of evidence indicated that the clean up of about 20 percent of the identified and assessed volume of hazardous waste *(clean up of known hazardous wastes)* is still in progress, particularly in the NWT, and will not be completed before 1997. The view is that the highest priorities have been addressed with about 60 percent of the volume of hazardous waste cleaned-up.

The *identification of suspected hazardous sites* has been completed essentially as per plan in both the NWT and the Yukon. Assessment of sites identified is in progress and almost complete. All DEW line sites and NWT mine sites have been assessed. The ratio of completed assessments was reported to be somewhat less in the Yukon where the mining industry has left more, albeit smaller, sites. The *clean-up of suspected hazardous sites* progresses.

It was reported that there is some work in progress regarding the *clean-up of waste near communities*, and that work to date has involved a number of hunting camps and dump sites.

In the **Water Component** the AES water quality monitoring network currently funds 81 water quality stations (61 in the NWT and 20 in the Yukon), the majority of which did not exist prior to the AES. Lay samplers are involved depending on a station's location. The water quantity monitoring network, which was vulnerable to budget reductions, was implemented on a scaled-down basis resulting in 45 hydrometric stations being established or reactivated.

Between 1992/93 and 1994/95, 79 water quantity and quality area specific studies were undertaken. Several sources of evidence suggested that water quantity studies claimed a relatively small portion of the budget and relied heavily on partners. Many of the water quality area specific studies were noted to be in progress. They have generally been implemented as planned and are ongoing as community water quality issues arise. Based upon a sample of 32 projects, about half of the water quantity and quality area specific projects were completed and half were still in progress. Most of these projects had completed the data collection/research components of the studies, with final reporting, publications, or final video production as reasons commonly reported for projects still in progress. Field work was continuing for projects involved in time sequence data compilation. There was a high level of collaboration between DIAND project managers and research scientists or experts at agencies such as Environment Canada, DFO, National Hydrological Research Institute (NHRI), Health Canada, Universities and GNWT Renewable Resources, private enterprises and communities. Other Departments have involvement with over 90% of the projects, with communities and aboriginal organizations being involved in approximately 40%. The average annual size of the projects was $58,000. The duration of projects ranged from one year to the full six years of the strategy, with the average project length at just over two years. Other sources of evidence revealed the general view that area specific studies have been implemented as planned with 80% of projects complete in the NWT and 90 percent complete in the Yukon.

Although the Yukon Water Laboratory was not established, there was consensus that the NWT laboratory was upgraded according to plan and that all goals had been achieved. This laboratory was seen by some regional officials as one of the best in Canada and was reported to be nationally recognized for inorganic contaminants testing. It is used by both territories.

The **Environment/Economy Integration Component** was implemented and administered at the regional level with limited Headquarters responsibility. Between 1991/92 and 1994/95, 36 Community Resource Management Program (CRMP) projects and 358 Environmental Action Program (EAP) projects were undertaken, some of which are recurring. Implementation in the NWT was seen as smoother, due to having dedicated CRMP and EAP staff persons working in Yellowknife.

A total of 23 CRMP and 34 EAP projects were randomly sampled to provide self-evaluation data as part of the evaluation. Eleven of the 14 CRMPs sampled in the NWT extended beyond one year with the average project duration being just over two and one-half years. Only one of the nine CRMPs sampled in the Yukon extended beyond one year. The duration of this project was three years. The average expenditure for CRMP projects was $31,500.

95% of the EAP project sampled were complete with the remaining projects scheduled to be complete within the 1995/96 fiscal year. The average EAP project size was $5,500 which does not include any contributions made by proponents.

The evaluation encountered widespread praise for the capacity building which has been attributed to CRMP project implementation. Although over half of the sampled projects were expected to yield plans, it was conceded that such plans are not always in written form. Some communities, for example the Deh Cho First Nation, have undertaken CRMP projects expected to result in conservation strategies and resource policies. CRMP money was in some cases used to finance specific local environmental projects without comprehensive plans. While such projects had positive effects, it is important to note that the intent of the CRMP program was to support plans which serve to complement territorial conservation and environmental strategies, land use plans and government economic strategies. EAPs typically involved short term awareness building, and almost all are complete. To date, the Northern Information Network has been implemented and is updated regularly. The network has been made available recently on the Internet.

Canada's Ambassador is leading negotiations for the Arctic Council and the Arctic Council Secretariat had not yet been established at the time of evaluation interviews. Funding for this was diverted to the AEPS Secretariat. The Council will assume a broader scope encompassing both environmental and socioeconomic (e.g., transport, trade, sustainable development) issues. The Arctic Council, expected to be formed in July 1996, is intended to subsume the AEPS.

- ***deviations from original program design***

In the **Contaminants** area, CINE implementation was slower than planned, partly due to changes in the GNWT Department of Health. As well, in the human health area, work remains to be done in terms of looking at results and assessing changes in contaminant levels over time. Regarding the provision of timely health advice to northern people, there was overall frustration with the timeliness of health assessments from Health Canada. There was a general opinion that the situation is improving both in reaction times and through educational initiatives.

It was pointed out that to expect **Waste** implementation to have occurred according to plan would be unrealistic, given that objectives were not revisited following the sharp drop from a cost estimate of $400 million to a budget of $28 million. Even after the AES money was augmented by other departmental funds, most officials noted the insufficiency of the reduced budget to accomplish the task of cleaning up DEW line sites alone. DIAND NWT's concern over legal obligations with respect to *CEPA* violations removed some flexibility for allocation beyond "non-discretionary" activities. Thus, there was less of a decision making role for the Aboriginal Partners. Insufficient funding was seen as the reason for the clean-up of only two of DIAND's 21 abandoned DEW line sites.

Although waste clean-up near communities began with a high profile, its role lessened ("unsightly but not dangerous") as greater priority was assigned to hazardous sites. It was reported that funds to support local waste management strategies were diverted to other areas of the Waste Component. Some evaluation participants suggested that work in this area was supported by the Environment/Economy Integration Component through CRMP.

In the **Water** area, it was found that expectations for water quality monitoring were cut back in the face of insufficient resource availability. This led to a reduced geographic coverage. In the water quantity area, cuts in A-Base budgets, the reprofiling of AES resources, and a DOE decision to go to full-cost recovery for all federal-territorial stations combined to limit the extent to which DIAND could implement its plans. Specifically, a total of 206 hydrometric stations (131 in the NWT and 75 in the Yukon) existed prior to the announcement of the AES and up to 100 additional stations were to be added through the AES. As part of a network rationalization exercise the network was reduced by over 30 stations in 1990. Furthermore, as the AES progressed over a five-year period, escalating costs of operating and maintaining the network on a fixed A-Base forced managers to further reduce the size of the network. Hence, forty-five AES stations were established, including the re-activation of priority stations that were closed down earlier for budgetary reasons.

The non-implementation of the Yukon Water Laboratory clearly deviated from plans. The decision to build the Yukon lab was apparently based on 1989/90 studies which identified the need and the assumed availability of AES resources. In response to strong public concern over the cost-effectiveness of a Yukon laboratory, the decision was taken not to proceed with construction. Most AES money was redirected to the Yellowknife laboratory, CINE and other parts of the Yukon water program. Remaining AES funds went to finance a scaled-down field laboratory to meet legal obligations under the *Yukon Waters Act*.

In the **Environment/Economy** area, it was noted that progress was slower for projects requiring co-management agreements in the NWT because of the great successes achieved with smaller projects not requiring such agreements. It was suggested that more progress could have been made given time and if communities could have been funded to full capacity. There was also some concern about the status of CRMP implementation committees at the local level, and what might happen to the new infrastructure if there were no money for implementation post-AES.

Implementation Efficiency

The efficiency of AES implementation was assessed in terms of management and administrative structures, processes and delivery systems, communication structures and clarity of roles. Most evidence on the overall administration of the Strategy arose in the context of a particular component. Policy development and senior decision-making were viewed as adequate or better by about two-thirds of officials, although territorial officials tended to have a less favourable opinion.

Overall, the evidence indicates that while the component structure may have facilitated implementation initially, the elimination of barriers between program components could improve the administrative efficiency and reduce costs by reducing the number of committees and enhancing communication. In fact, inter-component coordination was the aspect of administration and delivery cited most often as an area for improvement by participants in the Strategy. While coordination was seen as adequate between specific components regionally, this was not the case overall. For example, in the Yukon, there was a high degree of collaboration between the Waste and Contaminants components. Within Headquarters, communications between Water and Contaminants ensured that research was complementary rather than overlapping. The evaluation found that greater inter-component coordination could have led to efficiency gains.
The evaluation found a need for interpretive mechanisms to ensure that successes under the AES are recognized and that a gap is not left where expectations have been generated. Furthermore, there is a need to ensure that research results and the implication of these results are clearly communicated to Northerners so that they can weigh the evidence and have confidence in their decision-making.

The analytical framework employed in assessing component efficiency examined the areas discussed below through the various lines of evidence available.

Contaminants Component

Management and Administrative Structures

The organizational efficiency within the Contaminants Component received high grades. The implementation process was characterized as being an efficient solution to a difficult task and this was attributed by project managers to the people administering the component. There was good support for the annual funding and review processes. Almost half the project managers interviewed noted that the program's strength was derived from the people administering it. A need was noted for give and take at the Science Managers' and Technical Committee meetings, as individual priorities had to adjust to the needs of the group.

Committees

There was almost unanimous agreement that the committee structure had enhanced coordination. Officials generally favoured the committee structure which had overall policy direction and final decision-making coming from the Science Managers' Committee, representation of leading edge scientists and program stakeholders on the Technical Committee, and the Yukon and NWT Contaminants Committees serving a valuable consultative role. The view was raised that the Science Managers' Committee is effective in checking the Technical Committee, which had greater potential for subjective decision-making.

The Yukon Contaminants Committee was seen as somewhat more effective than its NWT counterpart, attributed to the effectiveness of workshops which increased stakeholder involvement. The NWT committee was established by the territorial government prior to the AES, and was seen as having had less success historically with stakeholders.

Communication

From a communications perspective, success was noted inside the research community, largely due to the annual review symposium. Officials in the NWT saw contaminants communication as less adequate than did their counterparts in the Yukon and National Capital Regions. There were differences of opinion regarding the emphasis that should be placed on Education, Communications and Community-Based Strategies. Aboriginal Partners took credit for identifying the need for this research and getting it implemented as a separate category mid-way through the program. The Métis Nation-NWT territory-wide school curriculum on contaminants was cited as an example of leading edge work.

Communications was seen as inherent to each project. In addition to the mandatory year-end reporting of progress and results, all proposals must follow the 1993 *Guidelines for Responsible Research,* which ensure appropriate consultation with, involvement of and the feedback of results to communities participating in studies. There was overall consensus that it was important to continue efforts to link scientists with communities. Specifically, some lines of evidence pointed to a lack of a built-in interpretive mechanism to explain the impacts of current findings on human and environmental health. In the words of one project leader, "...with the results from this program, we can tell northeners what they're being exposed to, at what levels, and sometimes where a contaminant is coming from. But in many cases, we are unable to tell them what it all means..." This sentiment was echoed in the Aboriginal Partners' evaluation which concluded that the greatest challenge to this program is to make the research results relevant to the people most affected by contamination.

Inter-Component Coordination

There was a high degree of complementarity between the contaminants, waste and water components. Because contaminants research activities were well-defined, this was not seen as leading to any duplication of effort. Inter-component coordination was facilitated by the inclusion of the relevant waste and water managers as members of or observers to the Technical Committee. The Yukon region runs a coordinated contaminants and waste program. As a result of these coordination efforts, some projects were co-funded while other proposals made to the contaminants components were redirected to other components.

Waste Component

Management and Administrative Structures

Higher ratings were consistently attached to the organizational efficiency of Waste Component activities in the Yukon. Both Aboriginal Partners and government officials in that region noted that the arrival of new program management had improved management efficiency. In the NWT, the imposition of health, safety and legal liabilities was seen to lead to less management control, resulting in reduced emphasis on specific planning and priority-setting activities. However, it was suggested by some regional officials that priorities could be set despite such obligations. It was noted by Aboriginal Partners and project leaders that increased funding would provide greater latitude to address a wider array of projects.

Committees

The committee structure was seen as supporting the achievement of objectives in the Yukon, but not in the NWT. The Yukon Waste Steering Committee was seen as a useful forum to vet concerns. Committee members believed information exchange within the program to be important. In the NWT, the committee was told what the priorities would be and this was attributed to the department's obligation to meet legal liabilities.

Communication

Efficiency ratings of activities in the NWT were coloured by participants' satisfaction with their consultative roles within the component. Those who believed DIAND should not have direct control over identifying liabilities gave lower ratings for project identification and assessment activities. Accountability was seen as higher in the Yukon region, again due to the broader consultative role of the Waste committee.

The same pattern held for communication of project managers with the Steering Committees. About 70 percent of project managers in the Yukon indicated frequent contact with the Yukon Waste Steering Committee, whereas only 18 percent of NWT project leaders reported communicating with the NWT Waste Priorities Committee.

Clarity of Roles

Most regional officials and project leaders reported that the participant roles were clearly defined within the Waste Component. In the Yukon these participants were satisfied with the current division of responsibilities and the clarity of stakeholder roles including the CYFN. It was indicated that a sufficient amount of authority had been given to local and regional people.

Evidence from interviews in the NWT supported the need for improvement in the division of responsibilities. Some regional officials found confusing directions from different levels of DIAND management, and there was some degree of disagreement about the appropriate level of accountability between the NWT region and DIAND Headquarters. The appropriate role of the Aboriginal Partners was also contended, especially with the recent emphasis on meeting the Department's legal liabilities.

Project Implementation

A number of implementation challenges were noted. In the NWT, approximately ten percent of projects encountered delays in receiving funds from DIAND, often slowing work. Such delays were seen as stalling payments to contractors or rentals of necessary equipment. In the Yukon, one project exceeded the budget because aspects of the remediation were found too costly. Both regions experienced difficulty in finding appropriate staff, which sometimes delayed work. In addition, both regions experienced planning and logistical problems with finding appropriate equipment to conduct the work, inadequate information to complete the job, or encountered unexpected waste materials which raised costs.

Water Component

Management and Administrative Structures

The evidence suggests that the overall organization of the Water Component was generally efficient. There appears to be room for improvement in coordination with other federal departments. It was noted that interdepartmental competition detracted from overall efficiency. In addition, it was noted that although the various components of the Strategy were "in tune with each other", improvement could be made to ensure that all components were fully apprised of each other's activities.

Communication

Communications channels in the Water component were not viewed as successful in relation to the other AES components. Most lines of evidence indicated a general view that communication and consultation channels could be improved, particularly between government and communities. The suggestion was made that the NWT Water Advisory Committee could have been used more effectively. One view from the Yukon suggested insufficiency in relaying information on water to the public as a weakness of the overall strategy. Project leaders in particular indicated a need to communicate results to communities and stakeholders. They also wanted greater consultation with communities about requirements for information and the format in which it is provided. Aboriginal Partners thought communication between the two territories could be improved.

Clarity of Roles

Most lines of evidence suggest that the roles of participants within the Water Component were considered clear (although limited for DIAND headquarters and the territorial governments). The main exception was the lack of clarity of the Aboriginal Partners' role, and there was support for more thought being given to involving Aboriginal Partners to assist in the Water Program.

Local Staffing

Project leaders indicated there were often problems with turnover of lay samplers. In the Yukon, some communities experienced difficulty with inadequate sampling resulting in the termination of two water quality sampling stations. In the NWT, some communities experienced difficulty recruiting community people that could both perform the job and be sensitive to community issues.

Environment/Economy Integration Component

Management and Administrative Structures

There was overall praise in both regions for the efficiency of the Environment/Economy Integration Component. In the Yukon, however, the absence of a dedicated staff person for this dossier, coupled with funding rigidities, was seen by some observers as preventing effective community outreach. The assurance of adequate staff would be seen as an improvement in program efficiency.

Committees

The component's committees were seen to be facilitating the achievement of objectives, although few project leaders had regular contact with committees. This was not seen as unusual given that the committees' role was to set program criteria and screen proposals.

Some regional officials and project coordinators commented that there are too few representatives on too many committees and indicated that this problem goes beyond the AES.

Communication

All lines of evidence indicated that communication with communities was adequate. In fact, it was seen as so successful that there was excess demand for the money available. Committee members in the NWT used their own organizations' newsletters to help promote the benefits of the program. Those who thought communications could have been improved made suggestions such as greater outreach to community groups via radio and more focus on making results available to participants from other communities.

Clarity of Roles

There was general agreement that the roles of participants and stakeholders were clear. It was felt that the role of DIAND Headquarters had shifted over to the regions appropriately over time. All lines of evidence supported the view that regional DIAND offices were clearly responsible for program implementation and other participants such as the Aboriginal Partners, the territorial governments and other federal departments should have decision-making roles through the committees.

Proposal Selection Criteria, Application Deadlines and Funding

The proposal selection criteria and process were seen by most project leaders, including unsuccessful applicants, as fair and appropriate. The criteria were appropriately broad in order to ensure community commitment to long-term projects.

Some EAP project leaders in the NWT reported difficulty with the timing between application to the program and funding approval and arrival. This may be attributable in part to timing differences between the school year and the government fiscal year, since many of the EAP projects were undertaken by schools. Project leaders suggested that the process could have been faster, given the limited availability of optimal weather to complete work. Yukon project leaders expressed the most difficulty with the level of funding. In many cases, they found that funding was exhausted before project completion. Government officials emphasized the positive aspects of a process which they believed had kept "red tape" to a minimum.

Objectives Achievement

Overall, the AES was seen to be one of the federal government's most significant accomplishments to date north of 60°. The Strategy overall achieved many successes, even against a background of government cutbacks. Canada is said to be far ahead of all other countries on northern environmental issues as a direct result of AES work. The overall goals were seen as tangible and the AES was seen as having made a major contribution toward the achievement of all its stated objectives, although some of those objectives may have been overly ambitious in the short run. Many government officials interviewed considered the AES objectives to be a welcome adjunct to A-base activities.

There was an acknowledgement that it is too early to quantify results relating to the first objective (*ensuring the health and well-being of Arctic ecosystems*) but that the foundation had been laid to work towards this longer-term goal. Evidence from most sources indicates that the AES has increased environmental awareness throughout the North, which should, in the longer run, support the attainment of that objective.

For the second overall objective (*providing for the protection and enhancement of environmental quality and sustainable utilization of resources, including their use by indigenous people*) there was substantial evidence of the involvement of Aboriginal people in environmental issues, but the general view was that protecting environmental quality and sustainable utilization of resources are longer term. The foundations were said to be in place. The AES involved many people in both its planning and execution, and there was overall belief that what has been gained with Aboriginal Partners must be built on and consolidated. Significant gains were reported in community awareness of environmental issues and, through that awareness, in planning.

The evidence is strong for achievement of the third overall objective (*ensuring that indigenous peoples are fully accommodated in the planning, development, conservation and protection of the Arctic region*). The success of committees, partnerships and community outreach has ensured that indigenous peoples' perspectives have played an important role in the planning and development processes for Arctic conservation. Most community representatives in the Yukon believed that objectives had been achieved in the projects undertaken within their communities. NWT community representatives also considered objectives to have been fully or partially achieved. Although some were uncertain, not one believed that objectives had not been reached. Community, Aboriginal Partner and government officials said the AES changed positively the ways the federal government does business with local communities. The nature of the "true partnership" approach was commended by Aboriginal representatives and government officials and highlighted within the Contaminants component.

The same partnerships and community involvement have enhanced decision making through integrating various interests, providing similar evidence that the fourth objective (*ensuring better decision making though the integration of local, regional, national and international interests as part of new legal, constitutional and cooperative arrangements*) has been achieved at least in part. Although there was not strong evidence of improved national decision-making, the evaluation did find that communication channels have been improved between DIAND and other federal and territorial government departments. This should open the door for coordinated policy and decision making in the future. The achievements internationally, particularly through Contaminants work, although in the early stages, appear to be important. This confirms good progress toward achievement of the fifth overall objective (*developing international agreements and arrangements to use, conserve and manage resources and protect the circumpolar Arctic environment*). Canada's contributions internationally, with a focus on the AEPS and management of the circumpolar Arctic environment, were seen as significant. The ICC, one of the five Aboriginal Partners, has taken on an important role in this aspect of the Strategy.

Some areas were seen as falling short of expectations. Examples include the slowness with which communities have incorporated the sustainable development concept into routine decision-making and a general view that more work is required to move from increased awareness to the achievement of environmental health.

Realization of Intended Impacts

The extent to which the primary short and long term intended impacts (as described by the Treasury Board Submission and the Arctic Environmental Strategy Action Plan) have been realized is discussed in this section.

AES Intended Short-term Impacts

The evaluation encountered concrete evidence on the realization of intended short-term impacts and, indeed, unintended impacts. These are elaborated in detail in Annexes B to E, with major highlights below:

- ***Improved knowledge of contaminant sources, levels and health risks***
- ***Human health and environmental protection measures established and timely advice to northern people provided***
- ***Health and community welfare concerns related to water quality addressed***

Results from both water quality and contaminants research indicate that scientists, communities and policy makers have learned a great deal about sources and pathways of contaminants. The impacts on human health of contaminants have just started and are still in progress. For example, much is known about the existence of risks to human and marine health from POPs and industrial pollutants, but there was general agreement that it is still too early to determine their full effects.

One area of controversy was the issue of the safety of country foods. Generally, officials believed that there has been some restoration of confidence in country foods. A number of community representatives and Aboriginal Partners were concerned, however, that the very presence of scientists conducting tests on caribou or fish had created fears among residents, and that delays were far too lengthy in getting results back to the communities. Government officials agreed with this view, but were convinced that the problem arose from the initial approach and that such unintended outcomes were resolved by the implementation of the *Guidelines for Responsible Research* which came about as a result of the participation of the Aboriginal Partners. There was optimism that government agencies have learned important lessons about releasing information responsibly, as evidenced by the recent release of information regarding contaminants found in belugas.

- ***National and international research coordinated and international controls and initiatives to address contaminants established***

Many officials noted a significant impact on Canada's international profile and ability to support international work. These achievements were seen to be a result of the AES overall which has consolidated Canada's domestic environmental position, particularly due to the achievements under the Contaminants Component. Canada has taken a leadership role through the AEPS and AMAP in providing contaminants research results to other circumpolar nations. Although new international controls are not yet in place, progress has been good, with Canada sharing joint leadership with Sweden in a 1994 task force through UNECE to confirm the necessity for a legally binding international protocol on POPs under the Long-Range Transboundary Air Pollution (LRTAP) Convention. Government officials believe that at present, UNECE is the only avenue which is likely to enable concrete change in such controls in the foreseeable future. The Aboriginal Partners' evaluation underscored the strengths of the contaminants partnerships and the contribution of the research results to the development of international agreements. The literature review as well concluded that Canada has a major role to play at the international level.

- ***Risks posed by waste material on crown land reduced***

Many environmental impacts were attributed to the AES. Among these was the actual clean-up of wastes, improved knowledge and environmental awareness as a result of increased data gathering and monitoring activities. Overall, evaluation participants attributed significant gains in knowledge about the health of the northern environment to the strategy. Concerns were raised about delays in implementing waste clean-up plans in the NWT. This is discussed in more detail under "Implementation Status". It was acknowledged, particularly by case study participants, that AES has been beneficial in cleaning up both unsightly and hazardous wastes in or near their communities.

- ***Northern employment and business opportunities created***
- ***Training, employment and business opportunities to the North promoted***

Economic impacts were seen to have accrued largely as a result of the Waste and Environment/ Economy Components. In the latter, 90 percent of the money flows directly to communities. In terms of the Wastes component, the self-evaluation guides estimated an average of 75% of the funds spent on waste projects remained in the North. This estimate is confirmed by project leader interviews which estimated that 77% of the projects had between 75% to 100% of project expenditures spent in the North. Northern expenditures were largely in the areas of transportation, accommodation, camp supplies, equipment rentals and labour costs.

The short-term employment benefits and spin-offs due to community waste clean-up projects were seen as important. Based upon the sample of Waste component project leaders representing a sample size of 9% of all wastes projects (including six of the largest projects in the NWT) an estimated 535 jobs were created, involving 10,877 employment weeks. This represents approximately 218 person years of work. Consistent with the short-term nature of waste projects, these jobs were short term in nature. For example, 35 of the projects reported creating short-term jobs ranging from four hours to five or six months in duration. Assessed and inventoried projects created between two and eight jobs while clean-up jobs created between two and 117 jobs. Clean-up projects such as the Coral Harbour Military Site created 20 to 40 jobs each year over a three year period. The Great Slave Fish Camps clean-up created about 60 jobs each year for three years, and the Horton River-Pearce Point clean-up created 117 jobs for two to four months.

In addition to waste clean-up, EAP and CRMP projects have created a large number of jobs. According to the self-evaluation guides, 57 percent of CRMP projects and 43 percent of EAP projects had either short or medium-term employment benefits. Project leaders estimated that approximately 88 jobs were creating representing 2,042 employment weeks. This represents approximately 41 person years of work. In addition to these two components, the lay sampling program in the Water component was also noted has having some employment impacts.

In terms of indirect benefits, interviews with project leaders reveal that the larger waste projects had significant impacts on local economies. For example, the Coral Harbour clean-up project was viewed as a major boom to the local economy, as was the Iqaluit clean-up project. The case studies conducted as part of the evaluation confirmed this. For example, the Venus Mine Tailings Project in the Yukon and the Camsell Bend clean-up in the NWT resulted in the use of local equipment, labourers, equipment operators and supplies.

Also important is the transfer of skills to communities which occurs through their involvement in the AES-funded projects. Some of the skills cited include project management and exposure to the work place. Clean-up of land claim areas was also viewed as increasing beneficiaries' knowledge of waste policies. For example, that the management committee was set up in Iqaluit and that all work was done by NWT land claim beneficiaries was viewed as increasing aboriginal participation in policy.

- ***Full native participation assured***
- ***Increased access to traditional and scientific information***
- ***Improved local, regional and national decision-making***

Most sources of evidence point to positive impacts arising from Aboriginal partnerships and direct community involvement in the decision-making process of the strategy as a whole and within individual AES-funded projects. Full Aboriginal participation in all phases of the process was viewed as a key impact by virtually everyone. The consensus approach to decision-making was considered to be another beneficial impact of the AES participatory process. It was suggested that Northerners have become empowered to make decisions based on information rather than emotion, and both officials and community representatives suggested that the AES has taught communities that being better informed puts them in a stronger position to control their own resources and environment. The Waste program, especially in the Yukon, brought communities together to work on environmental issues.

Work must still be done to increase access to scientific and traditional information, given the lack of response to the Northern Information Network.

- ***Enhanced water resources management regime***
- ***Information base to support Federal Policy commitments established***

Both the regional reviews and project leader interviews produced evidence indicating that these impacts had occurred through the Water component. The introduction of a water quality network combined with an expanded water quantity network has significantly enhanced information, technical capacity and management relating to water resources in the North. The evaluation encountered minimal evidence relating to information in support of federal policy commitments.

- ***Community resource management plans and action projects implemented***

All lines of evidence suggested that the CRMP program has proven highly beneficial to communities. Project leaders and case study participants explained that Aboriginal communities are being required to comment on a wider array of resource issues with government and private industry. In their view, this program serves the purpose of providing communities with the opportunity to focus attention on their specific issues. One NWT community, for example, attached high priority to protecting the beluga whale. The CRMP program afforded decision-makers and residents the opportunity to find an appropriate solution to preserve this species. In Fort Simpson, the Denendeh Resources Committee received funding over three years to develop a plan for land and resource use. The intent of the project was to develop capacity in the Liidli Kue First Nation to deal with lands and resources issues and decision-making in a way that reflects Dene values, knowledge, and decision processes.

With respect to Environmental Action Projects, short-term plans were developed to address specific community concerns. The Carcross-Tagish community wished to organize a recycling centre. The EAP program provided the means to plan the project and determine how best to respond to residents' needs. In one NWT community, residents used the program to plan for the implementation of a long-term recycling program. Although this has not yet been implemented, the residents understand all the steps involved. Overall, most lines of evidence indicate that the EAP created opportunities to plan for priority community issues. Further discussion about the status of implementation of CRMP and EAP is found in Section *Implement Status*.

Increased awareness of environmental concerns and the concept of sustainable development

All sources for the evaluation encountered a belief that the principal benefit of the Environment/ Economy component overall was heightened awareness for environmental issues at the local level. Project leaders and case study participants indicated that much attention was placed on preparing educational materials for students, newsletters, public information meetings, and general information such as posters and leaflets. Some regional officials and project leaders saw one positive benefit of involvement in this component as communities learning to take charge over their own environmental resources.

AES Long-Term Intended Impacts

On the basis of the short term impacts identified above, it is plausible that the intended longer term impacts are achievable. By their very nature, these longer term impacts cannot be fully assessed after only five or six years. The evaluation findings indicate, however, that the pieces of the puzzle appear to be falling into place. The longer term intended impacts for the Strategy were:

- Integrity, health, biodiversity, and productivity of Arctic ecosystem preserved;
- Environmental quality and sustainable utilization of resources protected and enhanced;
- Indigenous peoples' perspectives, values and practices accommodated;
- Improved decision making through the integration of local, regional, national and international interests as part of new legal, constitutional and cooperative arrangements; and
- International agreements and arrangements to use, conserve and manage resources and protect the circumpolar Arctic environment.

Continuing Relevance

Appropriateness of Objectives

Most lines of evidence point to the overall AES objectives remaining appropriate, although some officials commented that the goals bordered on "motherhood". Many participants in the evaluation wanted to see more focussed objectives. The bottom line for community representatives and many officials was the link to human health and economic well-being. The literature review found widespread opinion that environmental strategy in the North requires an approach which is coherent and based on consensus decision-making -- precisely the foundations of the AES.

Contaminants

Almost all lines of evidence indicated that the contaminants objectives remain appropriate. There was some opinion that the strategy for dealing with human health and contaminants in food has changed from recommending consumption avoidance to helping people make informed decisions. A difference was noted between short term and long term approaches to contaminants issues. While short term measures might involve avoiding the consumption of certain foods, long term measures require international controls on sources of contaminants. There was general agreement that contaminants levels should be monitored into the future.

Waste

The objectives of the Waste Component were seen as remaining relevant. There was general agreement that waste clean-up must continue. Due to a budget lower than what had been anticipated, the goals and workplan were revised. Aboriginal Partners in the NWT disagreed with DIAND's unilateral decision to focus the limited waste budget on cleaning up hazardous sites to meet its legal obligations under *CEPA*. The Aboriginal Partners believed that community clean-up projects continue to be appropriate.

Water

A majority of officials believed that the Action on Water objectives remain relevant, and pointed to the way in which these objectives tie into contaminants work and ultimately to human health and safety. Community and project interviews indicated that the Water Quality aspects of the program should be maintained.

Environment/Economy

Almost all participants considered the component objectives appropriate. A need was noted to develop "community capacity" to assess and develop environmental resource management plans. In some cases, it has taken more than a year to bring communities together to discuss common issues, emphasizing the need for a process to achieve long-term plans. Officials conceded that the CRMP and EAP may be relevant, but that their priority can not be considered as high as human health issues.

Linkages and Overlap

Evidence from all sources pointed to the beneficial aspects of the linkages between the water quality program and contaminants, wastes and some CRMP projects. Representatives from the water program sit as members on both regional contaminants committees and also on the Technical Committee, and it was reported that discussions take place about where issues have the best fit. Aboriginal representatives viewed the AES an example of the holistic approach to problems for which they have long argued. Although the linkages between the EAP and CRMP programs could be strengthened, the AES was seen as a promising example of future programs. Stronger links could be forged as well between the water and contaminants components as both serve to determine the health risks of water and airborne pollutants.

While other A-base and *Green Plan* work under the direction of DIAND and other federal departments is related to work carried out under this Strategy, the evaluation uncovered no evidence of duplication or overlap.

Ongoing Relevance

Overview of Domestic and International AES-Related Commitments

Chart 2, on the next two pages, presents an overview of the domestic and international commitments and some of the future priorities faced by the Northern Affairs Program (NAP). In terms of domestic commitments, AES activities fall under the general auspices of the *DIAND Act*. As stated in the AES Action Plan, Action on Water activities were intended to enhance the existing water resource management regime. It is a requirement of the *Canada Waters Act* that a comprehensive water resources management program be maintained. The AES Water component also supports DIAND responsibilities identified through the *NWT & Yukon Waters Act* and *Fisheries Act*. Action on Wastes activities fall directly under the *Canadian Environmental Protection Act* (*CEPA*) which are an ongoing requirement.

In terms of international commitments, activities under the Action on Contaminants directly relate to commitments under the AEPS, and other international fora. The quality monitoring and research activities supported by the AES Action on Water Program also provide information which is used to support these commitments.

In terms of potential future priorities, the development of the sustainable development strategy for DIAND is underway and attempts are to be made to take into account successful aspects of the AES and its components. As noted elsewhere in this report, activities under Water and Wastes were found to facilitate land claims initiatives and vice versa. Since waste clean-up and water quality are elements under land claims that can delay the negotiation process, progress in these areas as a result of AES activities can facilitate the earlier settlements. Conversely, one of the two DEW line sites was cleaned up under the AES as a result of Departmental land claim commitments.

Overwhelmingly, evaluation participants believed the AES rationale to be as pertinent today as when the strategy commenced, or even more so, given the heightened awareness of northern communities and recent changes in the world's political make-up. Officials noted that the AES is responsible for Canada's position in the international AEPS and the importance of the federal government having a program to help develop a national policy. Nearly 100 percent of community representatives (all but one) believed that the AES is still needed.

The continuing need for the Strategy was noted on a number of domestic fronts. Scientists and Northerners are still uncertain about the safety of country food. Contaminants research relating to human food is viewed as the key to resolving this uncertainty. The need for waste clean-up arises from legal obligations under *CEPA* as well a need to demonstrate responsible practices to the world at large.

CHART 2 : OVERVIEW OF DOMESTIC AND INTERNATIONAL COMMITMENTS AS THEY RELATE TO THE AES

	Descriptive Overview	Action on Contaminants	Action on Water	Action on Wastes	Action on Environment & Economy
Domestic Commitments	**DIAND Act** NAP is responsible for all federal mandates in the north not by law assigned to other departments such as: (a) political and economic development (b) scientific research and management of resources including water, land and environmental protection, (c) Federal coordination in the North	Undertake research and monitoring activities and associated communication activities such as health advisories	Enhance water quantity and quality research and monitoring activities	Initiate inventory, assessment and clean-up activities	Promote sustainable economic development practices
	NWT & Yukon Waters Act Provides for authority of Water Boards and the responsibility of DIAND to provide staff for its conduct in managing the conservation, development and utilization of waters		Enhance existing water resource management regime		
	Canada Waters Act and Fisheries Act DIAND shares responsibility with DOE and DFO for comprehensive water resource management program through participation in water surveys (quality and quantity) and water standards for fish habitats				
	Canadian Environmental Protection Act (CEPA) DIAND is responsible for meeting regulations under CEPA which include taking preventative and remedial measures to protect the environment			Commence clean-up of the North through containment or clean-up of hazardous sites	
International Commitments	**Arctic Environmental Protection Strategy (AEPS)** Issue "State of the Arctic Environment Report" advising circumpolar nations on health of Arctic, develop options to reduce and eliminate sources of marine pollution, develop framework to notify and cooperate in environmental emergencies, exchange information on flora and fauna, identify steps for sustainable development and work aimed at development of international protocol for control of persistent organic pollutants in Arctic ecosystem under the UN Convention on Long Range Transboundary Air Pollution	Undertake research and monitoring activities, advice, national and international coordination activities Provide information to support domestic and international policy development, agreements and protocols	Water quality research and monitoring activities supports these initiatives		
	Arctic Monitoring and Assessment Program (AMAP) As a working group of the AEPS, this program gathers scientific data on levels and effects of pollutants in all components of the Arctic ecosystem.				

OVERVIEW OF DOMESTIC AND INTERNATIONAL COMMITMENTS AS THY RELATE TO THE AES

	Descriptive Overview	Action on Contaminants	Action on Water	Action on Wastes	Action on Environment & Economy
International Commitments Cont...	**UN Economic Commission for Europe (UNECE), Organization for Economic Cooperation and Development (OEDC), International Atomic Energy Agency (IAEA)** Activities include environmental reporting and development of international protocols and cooperation for prevention and elimination of pollutants	Provides information to support these initiatives	Water quality research and monitoring is used to support these initiatives		
	Arctic Council (Circumpolar Nations) The Council will assume environmental and socioeconomic (eg.,transport, trade, sustainable development) issues.				
	Canada-Russia Agreement on Cooperation in the Arctic Focuses on economic development and promotion of direct contact among northerners				
Future Priorities	**Sustainable Development** Obligation to develop sustainable development strategy, consistent with NAP's natural resource management and environmental responsibilities	Challenge is to take into account how the successful aspects of the AES and the AEPS can be incorporated into the sustainable development strategy			
	Nunavut, Land Claims Implementation		Activities undertaken under these areas provide support to these initiatives. Claims activities in turn also support AES activities in areas such as (ie:funding to support water management and waste clean-up, land use activities, etc...)		

The capacity building taking place was seen to be a fraction of the potential in the area of resource management.

Evaluation participants were concerned about the consequences of sunsetting the AES. Regional officials suggested that the level of activity without AES funding will be below the threshold necessary to ensure the integrity of the Arctic ecosystems.

Contaminants

The evaluation found that the work conducted under the Contaminants Component continues to be relevant on a number of fronts. Evaluation participants noted that there is still much to be learned about the long-term effects of contaminants on human health. Without sufficient study of the health impacts derived from geographically-specific dietary information, communication strategies aimed at restoring confidence will be handicapped by the harder scientific evidence related to contamination of the food chain. Informed decision-making by Northerners cannot occur without full appreciation of the risks and benefits of the country foods actually being consumed.

Canada's commitments internationally presuppose a strong domestic commitment to the Arctic environment. Contaminants research continues to be relevant to the provision of evidence needed to support the control and eradication of contaminants sources internationally. The role played by Canada to date is easily rationalized by the proportion of domestic land mass and population at risk.

Waste

There was general agreement that Waste Component work remains relevant. In spite of concern over DIAND's actions to assign priority to hazardous sites in the NWT, it was generally acknowledged that high risk sites were important and that the issue was one of budgetary limitations.

The evaluation found strong local community participation in the planning and implementation of waste projects to be a critical factor in project success, but no consistency across regions or projects. It was suggested that communities so empowered will take the initiative to identify and clean up local waste problems, but that financial support will be required for larger-scale or higher risk projects.

Aboriginal Partners, communities, project leaders and government officials acknowledged the ongoing relevance of clean-up and pointed to a need to keep data current in the Wastes Inventory of Sites to ensure that future work priorities are determined on the basis of up-to-date information.

Water

The evaluation found that the settlement of land claims will greatly increase the importance of the Water Program. Community development and increasing infrastructure will place a growing burden on water resources. Information generated from water quantity and quality networks is vital to provide feedback for development activities.

About half the officials responding considered the Water Quantity work to remain relevant. At the same time, it was suggested that the six years of information collected from the water quantity stations should be sufficient to support decision-making. Some support arose for more emphasis on the expansion of the current network rather than upgrading existing sites. It was noted that, relative to more populated areas, the NWT has relatively few hydrometric stations. The evaluation found, however, that post AES-funding would make either type of enhancement unlikely. It was also indicated that the type of information received from water quantity stations should be revisited to determine whether it is satisfying current demands for other information such as water quality.

Evidence from most sources supported greater attention for water quality. A key point made both in the Yukon and NWT was that greater emphasis should be placed on understanding how contaminants enter and affect the food chain, particularly through water. Communities want to understand health risks, and believe additional research is needed and that the AES should place greater emphasis on community concerns. There was a strong view that the dissemination of results to communities must be in a format that is understandable.

Environment/Economy

There was general agreement that the objectives of the Environment/Economy Integration component continue to be relevant. It was generally agreed, however, that consideration should be given to the implementation of plans and projects after the Strategy's completion.

There was a view, however, that in spite of the benefits attributed to CRMP and EAP, this component was, in the face of budget realities, more expendable than other AES components, and could more easily be absorbed by other A-base activities. Thus, in spite of a view that the work remained relevant in an absolute sense, the component, relative to the others, was given a lower priority. Aboriginal Partners were less convinced that this should be assigned a lower priority, but conceded that the component could disappear or diminish in any renewed strategy.

Improvements and Alternatives

Strengths and Weaknesses of the AES Overall

All lines of evidence pointed to the partnerships formed under the AES as being the strategy's greatest strength overall. Another major strength was the higher national profile the AES has given to the Arctic environment. "True" and "meaningful" were often-cited adjectives to describe the AES partnerships which fully integrated Aboriginal Partners into the decision-making processes. This was said to be the first major government program in the North that built working partnerships with native organizations for programs not traditionally seen as linked to communities. While the Aboriginal partnerships were mentioned most often, also cited were the partnerships forged with other federal departments, territorial governments and other stakeholders. A major strength noted and confirmed by case study participants and community representatives was the extent to which communities were involved in the AES and consequently, the level of community buy-in and ownership. This was seen as due in part to the extent of consultation at the outset.

One comment alluded to the "strong spirit and drive at the front end to get something everyone believed in". It was noted that the strategy allowed Northerners not only to recognize they were part of problem, but also that they were an important part of the solution. Capacity building was another frequently-mentioned strength which was seen to spill over into other areas and be facilitating the movement towards sustainable development. Some officials regarded the quality of the science as a strength and the establishment of CINE as a major success. Also cited as strengths were the high visibility of the AES and the extent to which work under the strategy fed into the AEPS and put Canada in a leading role.

There was greater difficulty in delineating weaknesses of the Strategy. Limited overall coordination across components and poor accountability were cited by some. This was attributed to the lack of an annual reporting function and limited record keeping for both project and financial reporting. The evaluation also noted an absence of defined performance indicators and data in program files which inhibited an analysis of cost-effectiveness.

The generation of expectations raised by the AES was seen as a serious weakness if the program is not to be renewed. In spite of successes in promoting environmental protection in the North, some concern was expressed that the relatively young population base among northern peoples requires even greater emphasis on sustainable development. Other comments related to weak communications and information dissemination within specific components. One view was that the AES represented a move to a new model and a new way of thinking and that people with the right attitudes were not always in place.

Suggestions for Alternatives or Improvements

Most suggestions were made within the context of program renewal. Almost everyone agreed that there is a continuing rationale for the work conducted under the AES. Most government officials conceded that the program in its current format is unlikely to endure given the fiscal climate. With less money available beyond the six years, they saw the challenge as determining which are the best aspects and how they can be maintained.

None the less, many officials believe that there is strong scientific evidence to justify continuation of certain aspects of the work under DIAND's A-base. They noted the need for an overall game plan to ensure that limited funds go where they are needed most. This was thought to be important in the context of Canada's ongoing contribution through the AEPS to the work of the Arctic Council and for the advancement of work for international legal instruments for control of long-range transported contaminants.

There was some support for revamping the program and integrating it into one package emphasizing contaminants and water quality. It was thought that this would impact favourably on partnership costs since there would be fewer committees. The future of work done under Environment/Economy Integration elicited the widest range of opinion. Some felt there were other A-base programs that could absorb these AES activities while others advocated greater focus on action at the community level citing the low-cost gains that have been made and the need for greater involvement of Inuit communities in the Eastern Arctic. Among officials from government and Aboriginal organizations, there was some sense that successes under this component were not well known and that better publicity would help. Others wanted more focus on communicating at the grass roots level.

Some government officials felt there was a need to re-examine the partnerships and to ensure that partnership funding to different organizations was targeted to where they could deliver. Removing the uncertainty of funding was seen as one of the greatest improvements that could be made, according to evidence from several sources.

Some of the suggestions for improvements to specific components included:

Contaminants

- better communications and interpretive mechanisms to meet growing expectations stemming from increased community awareness about various health issues;
- more training for scientists in northern cultures to enable more effective communication; and
- better coordination with other AES components to facilitate a more holistic approach.

Waste

- more input into funding decisions in the NWT with management closer to the Yukon model.

Water

- more attention to priority setting in the Water quality area;
- improved linkages between the Water and Contaminants components in particular;
- a more coordinated and concerted effort to initiate and conduct research regarding water pathways and the flow of contaminants;
- tie the post-1997 maintenance of water quality sites into land claims, and
- in rationalizing the hydrometric network to what can be maintained through A-base budgets, consideration should be given to areas with high industrial potential.

Environment/Economy

- more follow-through from DIAND on CRMP projects;
- improved promotion of need for community resource planning consistent with local priorities;
- encourage Aboriginal communities to continue developing and updating resource plans to deal with specific issues such as land-use in order to assume a proactive stance toward local industrial and economic development; and
- shift the emphasis away from planning and toward implementation.

Lessons Learned about Best Practices and Developing Partnerships

Lessons Learned about Partnerships

Participants in this evaluation expressed clear and complementary views about the purpose of the partnerships formed under the AES. The Aboriginal Partners' evaluation refers to the "synergies of partnership". Community representatives and Aboriginal organizations called this a true and meaningful partnership, and many participants inside and outside government said that the AES had, in the North, bolstered the credibility of DIAND in particular and the federal government in general. All stakeholders saw the success of partnerships as a recognition that success is not attainable without the full involvement of all levels of government and Northerners in decision making. The AES Partnership ensured program relevance and a focus on both community concerns and scientific inquiries. Some people interviewed saw partnerships as a means to empower decision-making bodies and provide balanced information to support informed decisions. The legacy of these partnerships will be to create the capacity to carry on when DIAND is no longer there.

The praise for the positive aspects of the partnership approach far outweighed any criticisms received. The main strength of the partnerships forged under the AES was that there had been true involvement in management and decision-making at several levels. This view was expressed by a broad cross-section of evaluation participants, with the *caveat* that this had not been evident consistently within the waste and water components. Aboriginal Partners were seen as the conduit to community involvement, and the federal government was credited with having done an excellent job of building trust and having committed personnel. Another strength associated with the partnerships was the mutual respect among the various partners that had evolved. An additional strength was that the involvement of all parties ensured that decision-making would draw from a broader information base. Other strengths of the partnerships formed under the AES and cited by officials, community representatives and project managers include:

- showed how to conduct research in communities;
- able to reach out to remote areas where bureaucrats could not;
- allowed community people to relate to community people and rely on local expertise;
- promoted community environmental awareness and involvement which helped to bring all people in the community together to resolve common issues;
- gave territorial governments and Aboriginal peoples a voice in how things are done;
- gave government and communities a better understanding of how each other operates;
- helped create experience on the part of communities and the opportunity for government to opt out in the future; and
- some communities learned that government can be flexible if it communicates.

The main weakness of partnerships, according to officials, was the time-consuming process required to establish an acceptable level of credibility. Although decision-making was slowed down at times, this was not necessarily considered a weakness. The five Aboriginal Partners all considered core funding necessary to support their participation, but almost all of these organizations had concerns over the equal sharing which did not reflect variations in consultation costs due to either the number or remoteness of the communities they represented. The importance of following through with partnerships was stressed, given the extent to which expectations had been created, and many officials and community representatives feared that discontinuation of partnerships could be seen as a serious breach of trust.

As noted earlier, the Aboriginal Partners' participation was limited in the Water Component. This is due to DIAND's approach of dealing directly with communities on an *ad hoc* basis.

Demonstration of Best Practices

The AES was seen as having been a major contributor to promoting environmental understanding at many levels from community residents to senior levels of government. This, in addition to partnership development, was cited often as a demonstration of "best practices". Success was tied to an approach which encompassed consultation, priority setting, project selection and program implementation. The very fact that this blueprint was established opened the door to dissatisfaction in cases where deviations occurred, especially when Aboriginal Partners and other non-DIAND stakeholders felt they were outside the decision-making circle. The partnership model was considered innovative and potentially of wider application in other government initiatives. Different lines of evidence made the point that we must communicate the lessons learned and not let them be lost whether or not the AES continues. "Partnership", often thought to be government jargon, was said to have been made a working reality by the AES.

The literature review and expert interviews identified several "best practices". One was the importance in the Arctic of a collaborative approach which brings together governments, local populations and scientific researchers. Another practice noted was the importance of seeking a "polluter-pay" approach in the long run. Adherence to this principle would ensure that developers can be held financially accountable for waste generated through their activities. Finally, the literature points out that a balanced environmental strategy should have four components: participatory decision preparation and making; the scope of issues covered should be inclusive; a wide variety of instruments should be examined and matched with the appropriate targets (tools appropriate for the problems to be resolved); and, to be effective, the strategy must be sensitive to the complexity of pollution.

Aboriginal Partners, researchers and government officials associated the Contaminants Component with best practices. The Aboriginal Partners' evaluation called Contaminants "...by far the most effective program in creating a true partnership in program planning and management." Committee management and the competitive process under Contaminants were cited as examples that could be "showcased" as best practices. Similarly, CINE was also seen as a model of best practices. Research conducted under Contaminants and within CINE included the people targeted for research in management and decision making for the research planning process. Consultations undertaken for human health research projects often involved a significant investment in community education before studies commenced.

Both government and community officials also saw CRMP as a best practice program. It was suggested that the CRMP model has provided a successful blueprint for economic development and meaningful partnerships by allowing communities to identify their own needs and "drive the process".

Section 7 - Summary of Conclusions and Recommendations

This evaluation has examined the implementation, objectives achievement and continuing relevance of the Arctic Environmental Strategy. As well, the report and its accompanying appendices identify best practices demonstrated through the overall implementation of the Strategy and extract lessons to be applied in future work. The major overall conclusions are:

- Evidence from all sources indicates that the AES and its components have achieved major successes in meeting their prescribed objectives;
- The success of the partnership approach produced a synergy among partners which provides a blueprint for future DIAND and federal government initiatives in Canada's North;
- The major strengths of the partnership approach have been the application of consensus decision-making and community empowerment;
- The AES has shown public information and education to be vital in explaining the extent of environmental issues, in building awareness and in getting people involved in solving problems;
- The AES has enhanced Canada's credibility internationally, as demonstrated through Contaminants Component research;

The conclusions below are based on findings described in Annexes B through E and summarized in this evaluation report. The recommendations which follow are based on the conclusions.

- There is strong evidence and overwhelming support for continuation of the work begun under the Arctic Environmental Strategy, although fiscal realities are recognized;

RECOMMENDATION 1

DIAND should take the necessary steps to continue work priorities and partnerships which commenced under the Arctic Environmental Strategy.

- Priority areas identified in the evaluation were hazardous waste clean-up and contaminants research;
- Evidence from both scientists and program managers supports a stronger link between the water quality and contaminants research activities;
- Continued scientific research should focus on the effects on human and environmental health, rather than the sources and pathways of contaminants;
- Many of the AES activities could be subsumed under DIAND's A-base programs, with some additional funding likely necessary;
- Government and Aboriginal Partners strongly support eliminating barriers between program components, and any renewal efforts should attempt to establish stronger linkages between areas of common ground - this would reduce administrative costs, e.g., by reducing the number of committees, and enhance communication.

RECOMMENDATION 2

Any continuation of the work commenced under the AES should take place under a revised format: efficiencies can be attained by consolidating overlapping aspects of the research components and streamlining administrative and committee structures.

- The Waste Component fulfils a real need, and although work achievements have been substantial, continued support is required;
- Recent policy initiatives to sharpen the focus of waste activities should result in a more targeted approach emphasizing high risk sites;
- The evaluation found that the considerable local participation of communities and Aboriginal Partners in waste component planning and implementation had a direct bearing on project success, but this was not consistent across regions or projects;
- The Wastes Inventory of Sites, an important activity of the Action on Wastes Component, is DIAND's primary means of monitoring outstanding liabilities and planning future work, and the accuracy of the database is an important factor in program success.

RECOMMENDATION 3

To ensure DIAND's ability to meet its regulatory responsibilities and maintain Ministerial accountability, the Wastes Inventory of Sites should be maintained in an up-to-date fashion and periodically audited to ensure its accuracy.

- The evaluation found a need for interpretive mechanisms to ensure that successes under the AES are recognized and understood and that no gaps are left where expectations have been generated;

- Communities, Aboriginal Partners and DIAND officials have concerns over the format, language and timing of government directives and health advisories;

- Cultural sensitivity training for scientists would enhance the relevance of research to communities and improve communication;

- The conduct of scientific research has an important purpose and the results may be relevant to Northerners, but scientists must learn to respect and integrate traditional knowledge into their work;

- CINE's successes in terms of relevant science, community outreach and Aboriginal management should be built upon in future scientific research affecting the health and diet of Northerners.

RECOMMENDATION 4

The communication of scientific findings and health information to northern Aboriginal communities should reflect an understanding of the community and ensure the use of clear, plain language.

- Accountability is critical to the integrity of program administration. All parties receiving funds should participate in regular reviews to share findings and/or experiences;

- Where less success has been observed, it is almost always attributable to weaknesses in accountability or a deviation from the intended partnership approach;

- Although the AES program undertakes considerable reporting, the evaluation found that more performance measurement data would assist in ensuring effectiveness and communicating the achievement of results.

RECOMMENDATION 5

Any future iteration of the AES should place a strong emphasis on developing a results-based performance measurement regime and related data collection and implementation systems for management and accountability purposes.

- There is strong evidence and overwhelming support for continuation of the work begun under the Arctic Environmental Strategy, although fiscal realities are recognized;

- Priority areas identified in the evaluation were hazardous waste clean-up and contaminants research;

- Evidence from both scientists and program managers supports a stronger link between the water quality and contaminants research activities;

RECOMMENDATION 1

DIAND should take the necessary steps to continue work priorities and partnerships which commenced under the Arctic Environmental Strategy.

- Continued scientific research should focus on the effects on human and environmental health, rather than the sources and pathways of contaminants;

- Many of the AES activities could be subsumed under DIAND's A-base programs, with some additional funding likely necessary;

- Government and Aboriginal Partners strongly support eliminating barriers between program components, and any renewal efforts should attempt to establish stronger linkages between areas of common ground - this would reduce administrative costs, e.g., by reducing the number of committees, and enhance communication.

RECOMMENDATION 2

Any continuation of the work commenced under the AES should take place under a revised format: efficiencies can be attained by consolidating overlapping aspects of the research components and streamlining administrative and committee structures.

- The Waste Component fulfils a real need, and although work achievements have been substantial, continued support is required;

- Recent policy initiatives to sharpen the focus of waste activities should result in a more targeted approach emphasizing high risk sites;

- The evaluation found that the considerable local participation of communities and Aboriginal Partners in waste component planning and implementation had a direct bearing on project success, but this was not consistent across regions or projects;

- The Wastes Inventory of Sites, an important activity of the Action on Wastes Component, is DIAND's primary means of monitoring outstanding liabilities and planning future work, and the accuracy of the database is an important factor in program success.

RECOMMENDATION 3

To ensure DIAND's ability to meet its regulatory responsibilities and maintain Ministerial accountability, the Wastes Inventory of Sites should be maintained in an up-to-date fashion and periodically audited to ensure its accuracy.

- The evaluation found a need for interpretive mechanisms to ensure that successes under the AES are recognized and understood and that no gaps are left where expectations have been generated;

- Communities, Aboriginal Partners and DIAND officials have concerns over the format, language and timing of government directives and health advisories;

- Cultural sensitivity training for scientists would enhance the relevance of research to communities and improve communication;

- The conduct of scientific research has an important purpose and the results may be relevant to Northerners, but scientists must learn to respect and integrate traditional knowledge into their work;

- CINE's successes in terms of relevant science, community outreach and Aboriginal management should be built upon in future scientific research affecting the health and diet of Northerners.

RECOMMENDATION 4

The communication of scientific findings and health information to northern Aboriginal communities should reflect an understanding of the community and ensure the use of clear, plain language.

- Accountability is critical to the integrity of program administration. All parties receiving funds should participate in regular reviews to share findings and/or experiences;

- Where less success has been observed, it is almost always attributable to weaknesses in accountability or a deviation from the intended partnership approach;

- Although the AES program undertakes considerable reporting, the evaluation found that more performance measurement data would assist in ensuring effectiveness and communicating the achievement of results.

RECOMMENDATION 5

Any future iteration of the AES should place a strong emphasis on developing a results-based performance measurement regime and related data collection and implementation systems for management and accountability purposes.

- Most stakeholders agree that Canada has a major role to play in Arctic environmental protection, sustainable development and management at the international level. This is not unexpected given Canada's occupation of a vast land area in the circumpolar environment and the many Canadians inhabiting the area;

- A variety of departments are involved in the management of Canada's northern environment and AES has promoted interdepartmental cooperation;

- Increased coordination at the senior level would build upon successes gained in the area by ensuring the effective targeting of limited resources. DIAND could invite Senior Executives from other federal departments with an interest in the North to meet annually to review and coordinate Canada's efforts regarding the Northern Environment and its concomitant international aspects;

RECOMMENDATION 6

DIAND should continue to support a coordinated domestic approach on Northern environmental issues to ensure Canada a strong and credible presence internationally.

- Increased information exchange among the eight circumpolar nations would greatly facilitate an integrated approach to the management of Arctic resources;

- Many domestic lessons from the AES can support Canada's international involvement in circumpolar environmental issues;

- The AES enables Canada's participation in international initiatives such as the Arctic Environmental Protection Strategy (AEPS), which are the primary means for promoting our interests internationally regarding the northern environment and sustainable development. As well, AES work supports Canada's participation in the UNECE, at present the only avenue for achieving legally binding international protocols on transboundary pollution. The evaluation found the need for continuing support and additional research to sustain this international momentum;

RECOMMENDATION 7

The partnership approach demonstrated through the AES should form the foundation for Canada's contribution to international efforts aimed to enhance the circumpolar environment.

- AES support to international initiatives has come through the provision of direct resources, supporting research and, most importantly, maintaining linkages with northern peoples. Efforts should be made to ensure that the linkages which have been established continue to be fortified so that issues faced by northern communities which have a bearing on Canada's interests abroad find their way onto the international agenda.

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Terms of Reference

TERMS OF REFERENCE
EVALUATION OF THE ARCTIC ENVIRONMENTAL STRATEGY (AES)

Background: The AES is a six-year Green Plan initiative announced in April 1991 by the Ministers of Indian and Northern Affairs Canada (INAC) and Environment Canada. The AES provides direct funding to four federal departments: Environment Canada, Fisheries and Oceans, Health Canada and INAC.

The main goal of the AES is to preserve and enhance the integrity, health, biodiversity, and productivity of our Arctic ecosystems for the benefit of present and future generations. The AES consists of four components -- contaminants, waste, clean-up, water management, and environmental and economic integration. Each component is managed by INAC in cooperation with Northern communities, Aboriginal organizations, the other federal departments, and territorial governments through technical and management committees. The components are supported by the AES communications program.

From its inception, there has been a strong emphasis on the creation of partnerships with Northern stakeholders. The strategy was a result of over eighteen months of discussions with Northerners including: Aboriginal organizations, business groups, territorial governments, interest groups and other government departments.

Given the complexity of the program and the large number of stakeholders involved, an Evaluation Framework was developed with the help of consultants. This exercise included document and file reviews, as well as interviews and workshops with program personnel, Aboriginal partners and other stakeholders in the National Capital Region and the territories. The framework provides a detailed profile of the AES and identifies preliminary indicators, data sources, as well as evaluation issues and questions.

Need: The department has undertaken to submit to Treasury Board an evaluation of the performance of AES and options for the future. The findings of this evaluation are to be incorporated into a Memorandum to Cabinet to be tabled in 1996.[1] As a result of decisions taken pertaining to the Federal Budget, this evaluation will provide timely information to assist senior management on future programming activities and priority setting.

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[1] Please note that the mechanism for preparing a Memorandum to Cabinet may change based on the introduction in 1995 of the Expanded Management System, however, the thrust remains the same.

.../2

Scope: The evaluation will examine the strategy since its inception. It will assess the ongoing relevance, performance and effectiveness of the AES and recommend any necessary changes or improvements to the existing strategy.

Issues: The principal evaluation issues are:

- To what extent have the Arctic Environmental Strategy and its components accomplished their stated objectives?
- What is the status of implementation of the strategy and its components and to what extent has the implementation been efficient?
- Is there a continuing relevance for the strategy and its components?
- What improvements/alternativescan be made to the strategy and its components?
- What lessons have been learned from the strategy and its components regarding best practices and developing partnerships among stakeholders?

Approach: Consistent with the partnership approach adopted by the AES, the evaluation will be managed by a Senior Evaluation Manager from the Departmental Audit and Evaluation Branch, in consultation with an evaluation advisory committee. This committee is to consist of two representatives of the AES Aboriginal Partners as agreed to by each of the five Aboriginal Partners' Organizations (Dene Nation, Métis Nation, Council for Yukon Indians, Inuit Tapirisat of Canada, and the Inuit Circumpolar Conference), one representative from the NWT and Yukon INAC regional offices, and one program representative from headquarters.

The work will be undertaken both in-house and with the use of consultants. In order to address the evaluation issues, various modules will be undertaken to ensure that multiple-lines of evidence are used. The methods to be used include: file and database reviews, interviews with officials and stakeholders of the AES, and 4 or 5 case studies.

Resources & Timeframe: It is estimated that the evaluation will cost between $100K and $150K. A draft report of the evaluation will be completed by April 1996.

Approved by:

John Rayner
Assistant Deputy Minister
Northern Affairs

Annex B

Action on Contaminants

Table of Contents

Page

1. PURPOSE OF THE ANNEX B-1

2. METHODOLOGY B-1
   - Regional Officials Interviews and File Review B-1
   - Project Leader Interviews and File Review B-2
   - Community Visits B-2
   - Literature Review B-2
   - Aboriginal Partners Evaluation B-3

3. ACTION ON CONTAMINANTS PROFILE B-3
   - Background B-3
   - Objectives and Rationale B-3
   - Primary Activities B-4
   - Structure of the Component B-4

4. ANALYSIS OF RESULTS B-5
   - Implementation Status and Efficiency B-5
   - Objectives Achievement B-8
   - Continuing Relevance of the Action on Contaminants Component B-14
   - Improvements and Alternatives B-15

5. CONCLUSIONS B-17

Annex B
Action on Contaminants

1. PURPOSE OF THE ANNEX

The purpose of this Annex is to consolidate and present findings on the Action on Contaminants component for the evaluation of the Arctic Environmental Strategy (AES). Findings from this Annex are incorporated in the overall evaluation report which summarizes the AES from an overall perspective.

2. METHODOLOGY

The following sections outline the methodology utilized to gather evidence related to the Contaminants component, and describe lines of evidence and various inputs utilized to formulate findings.

Regional Officials Interviews and File Review

Interviews were conducted in each Territory and the National Capital Region. In addition a review of files was conducted to corroborate interview evidence. Table 1 contains the distribution of officials interviewed who had direct involvement in the Action on Contaminants component.

Table 1: Distribution of Respondents by Region

Organization/ Region	National Capital Region	Yukon	Northwest Territories	Other Regions	Total
DIAND	2	1	0	0	3
Aboriginal Partners	2	2	2	0	6
Territorial Governments	0	1	3	0	4
Other Federal Departments	4	3	2	1	10
Other Organizations	0	2	0	1	3
Total	**8**	**9**	**7**	**2**	**26**

Project Leader Interviews and File Review

A random sample of Action on Contaminants projects was selected for purposes of interviewing project leaders. The sample was later modified to account for the fact that category "D" projects, involving program coordination and administration, were not subject to the competitive process, and to reflect other factors such as merged projects. The final sample contained 39 funded and 14 non-funded projects, represented by 39 individuals. As well, headquarters files and annual research summaries were reviewed to augment interview results.

Table 2 presents the distribution of interviews among research envelopes and between funded and non-funded projects.

Table 2: Contaminants Project Leader Interviews

Envelope	Number of Participants*	Representing Funded Projects	Representing Non-funded Projects
A	12	11	3
B	12	11	3
C	10	12	3
E	10	5	5
Totals	39	39	14

* The column adds to 44 because some researchers oversaw projects which appear in different envelopes.

The project leaders came from a variety of organizations including Environment Canada (10), Fisheries and Oceans (9), universities (7), Aboriginal Partners (6), Territorial Governments (5), and one representative from each of DIAND and Health Canada.

Community Visits

Three case studies were conducted during the period December 1995 - January 1996. The total number of individuals interviewed in the three community visits does not reflect the number of people dealing with contaminants questions. Participants were, however, given the opportunity to comment on the evaluation issues in the contaminants context, and their views are reflected in the discussion below.

Literature Review

A review of literature related to environmental programs and activities within Canada and other jurisdictions was carried out to provide additional information regarding possible lessons learned, and recommendations for improvements which might be applicable to the AES.

Aboriginal Partners Evaluation

The evaluation undertaken on behalf of the five Aboriginal Partner Organizations[2] sought the views of 13 officials from the Aboriginal Partners and 11 from DIAND. Three general questions were posed to participants, the essence of which can be integrated with those approved in the Evaluation *Terms of Reference*. Results from the Aboriginal Partners' evaluation have been incorporated in the analysis.

3. ACTION ON CONTAMINANTS PROFILE

Background

Major contaminants detected in Arctic biota include PCBs, DDT, chlordane-related compounds, toxaphene, and dioxins/furans. Concentrations of contaminants in fish, marine mammals, and wildlife are similar across the Arctic indicating that contaminants are being transported by air over long distances. Eventually, contaminants find their way into the food chain. Although either banned or with usage restricted in North America and Western Europe, most pesticides and industrial chemicals of concern in the Arctic are still used routinely in other nations. Contaminants in traditional foods have been a principal concern for Aboriginal peoples in particular.

AES Action Plan: Action on Contaminants

Objective: *To reduce and wherever possible eliminate contaminants in country foods.*

Work Plan:

- Identify contaminant sources and their transport to the Arctic;
- Assess contaminant levels in fish and wildlife
- Assess the effects of contaminants on the health of northern ecosystems including human health;
- Provide timely health advice to northern people; and,
- Establish international controls through agreements and cooperation

Objectives and Rationale

The overall objective of the Contaminants Component is to reduce and wherever possible eliminate contaminants in country foods. This was to be accomplished by implementing a research program and management structure. The rationale of the component is to generate information which will aid policy-makers in their efforts to respond to national and international concerns related to the northern ecosystem and native diet contamination. As well, information generated through the program should aid Northerners' decision-making processes and their participation in the program. In addition, it is important that the component not only identify contaminant sources, but also evaluate the risks to the ecosystem and human health.

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[2] *Assessment of the Partnership between the Department of Indian Affairs and Northern Development and Five National Northern Aboriginal Organizations in Implementing the Arctic Environmental Strategy*, Hubert and Associates Ltd., Yellowknife, March, 1995.

Primary Activities

All research, administrative and communication activities within the Contaminants Component are funded as "projects" under one of the six priority areas established for the research program. These priorities were:

A. Sources, Pathways and Fate
B. Ecosystem Contaminant Uptake and Effects
C. Human Health
D. International Activities
E. Education, Communications, and Community-Based Strategies
F. Program Coordination

Most of the early research activities focused on categories A and B. More recently the emphasis has been on C, D, and E.

Structure of the Component

The AES is built on partnerships[3] between Aboriginal peoples, federal and territorial governments and the private sector. Management of the strategy and each component is achieved through a committee structure. The most senior committee is the AES Partners' Committee which involves DIAND Directors at Headquarters and in the two territorial regions and representatives from the five Aboriginal Partners Organizations. DIAND Headquarters provides the administrative support for this committee.

The Contaminants Component receives management and policy guidance from the Science Managers' Committee and the Action on Contaminants component of the strategy. DIAND headquarters personnel provide administrative support for the Contaminants Component. The Northern Contaminants Program is directed and administered by two committees chaired by officials from DIAND headquarters, the Science Managers' Committee and the Technical Committee on Contaminants in Northern Ecosystems and Native Diets ("Technical Committee"). There is some overlap in committee membership, with representation from all participating federal departments, Aboriginal Partners, Territorial contaminants committees and academic institutions.

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[3] Key partners include the five Aboriginal Partner organizations, DIAND regional offices, DIAND headquarters, and several other departments of the federal and Yukon and NWT Territorial Governments.

Except for a minor amount reserved for DIAND for program coordination, AES contaminants funds are allocated each year by the two committees through a competitive process. The Science Managers' Committee is responsible for overall policy direction and priority setting. This committee reviews the recommendations of the Technical Committee and gives final approval for funding. The Technical Committee reviews all proposals submitted and makes recommendations on the extent to which projects should be funded by AES contaminants component funds. Almost all applications for funding come from the organizations represented on the committees. An envelope system was introduced for the past two years to ensure that funds are directed to the desired balance of research priorities. In prior years all proposals were evaluated by all Technical Committee members in plenary sessions. With the introduction of the envelope system, a proposal is now assessed only against others applying to the same envelope.

Centre for Nutrition and the Environment of Indigenous Peoples (CINE)

The Centre for Nutrition and the Environment of Indigenous Peoples (CINE) is an independent research and training centre which was opened at McGill University in September 1993 using seed money provided by the Contaminants component. Five of the seven seats on the governing board are filled by representatives from each of the Aboriginal Partners. The Centre studies the nutritional and environmental health of northern aboriginal peoples by undertaking participatory community-based research and education related to food systems and the environment.

4. ANALYSIS OF RESULTS

Implementation Status and Efficiency

Since 1991, the Contaminants Program has contributed approximately $14.7 million to some 80 research projects, and has as well supported the McGill Centre for Nutrition and the Environment of Indigenous People (CINE), and the participation of aboriginal organizations.

Implementation Status

The evidence from most sources was that implementation of the Contaminants Component had occurred as originally planned. Some government officials suggested that there was a "living plan" steered by the Science Managers' Committee, with work priority areas evolving as new information emerged.

Implementation Status of Each Action on Contaminants Element:

Identification of Contaminant Sources and their Transport

A number of regional officials noted the international ramifications of the findings which indicate most of the sources of contaminants are outside Canada. It was noted that we still have much to learn about what substances are coming from countries such as China and India.

Assessment of Contaminant Levels in Fish and Wildlife

There was general agreement that most of the work in this area is complete with a few studies still in progress. It was noted that this work formed much of the thrust of the program in the early years and a huge amount of information has been collected. There was a general opinion that work remains to be done in terms of looking at results. Scientists noted the danger in assuming representativeness of samples given observed variations across the Arctic. It was noted that a gap remains in assessing changes in the levels over time.

Identification of the Effects of Contaminants on the Health of Northern Ecosystems including Human Health

There was a general view that the assessment of impacts on human health has exhibited the least progress. A common explanation was that the initial need was to better understand sources and pathways. There was some disagreement among project leaders, community officials and government officials about the reasons for slow progress on human health issues. Some pointed to the longer time period necessary given the limited state of knowledge internationally about long term chronic and inter-generational effects on human health from persistent contaminants present in the food chain. Others attributed delays and shifts in priorities to political influences. Overall, the consensus regarding implementation was that work in this area lags behind expectations.

Provision of Timely Health Advice to Northern People

Community representatives, Aboriginal Partners and many government officials expressed frustration with the timing of health assessments by Health Canada, or at least the timing of their release. It was noted that the situation is improving through educational initiatives and faster responses
from the laboratories, but that credibility must be established among northern residents.

Establish International Controls through Agreements and Cooperation with Other Countries and the Circumpolar Community

Significant progress was reported in this area, with many scientists and regional officials noting the lead role Canada has taken internationally in working to establish controls to prevent the entry of persistent organic pollutants (POPs) into the Arctic. Regional officials noted great advances regarding international controls on POPs, a subject not even under discussion in 1990. Now, negotiations are proceeding to develop a protocol to control these substances. The Aboriginal Partners' evaluation also corroborated the importance of these achievements.

Centre for Nutrition and the Environment of Indigenous Peoples (CINE)

Implementation was somewhat slower than planned, partly due to changes in the GNWT Department of Health. It was estimated that CINE is currently undertaking research involving some 40 northern communities. A number of regional officials and Aboriginal Partners cited the helpfulness of the Centre in getting food analyzed. Some participants in the case studies acknowledged participating in CINE-sponsored community surveys.

Efficiency of the Component

Management and Administrative Structures

Overall, there was widespread praise for organizational efficiency within the component. The implementation process was characterized as being an efficient one, developed to handle a difficult job. Many project managers and officials supported the annual funding and review process established. Almost half the project managers interviewed noted that the program's strength was derived from the people administering it. A need was noted for give and take at the Science Managers' and Technical Committee meetings, as individual priorities had to adjust to the needs of the group.

Almost all regional officials, Aboriginal Partners and project managers applauded the committee structure. Officials generally favoured the committee structure which had overall policy direction and final decision-making coming from the Science Managers' Committee, representation of leading edge scientists and program stakeholders on the Technical Committee, and the Yukon and NWT Contaminants Committees serving a valuable consultative role. The view was raised that the Science Managers' Committee is effective in checking the Technical Committee, which had greater potential for subjective decision-making. The Yukon Contaminants Committee was seen as somewhat more effective than its NWT counterpart. Workshops held by the former contributed to its degree of stakeholder involvement. It was noted that these territorial committees play an important role in determining how to use the information derived from research conducted under the component.

Communications

The issue of communications was addressed from a variety of perspectives. Intra-research community communications were seen as working reasonably well, and the annual review symposium at which project results are presented and discussed was seen as an adequate mechanism. Officials in the NWT saw contaminants communication as less adequate than did their counterparts in the Yukon and National Capital Regions.

There were differences of opinion regarding the emphasis that should be placed on Education, Communications and Community-Based Strategies. Aboriginal Partners took credit for identifying the need for this research and getting it implemented as a separate category mid-way through the program. The Métis NWT-wide school curriculum on contaminants was cited as an example of leading edge work. Apparently, some officials had initially assumed that communication with communities would emerge as a natural result of the partnerships. Views were mixed on the shift of funds from science to communications.

Communications was seen as inherent to each project. In addition to the mandatory year-end reporting of progress and results, all proposals must follow the 1993 *Guidelines for Responsible Research*, which ensure appropriate consultation with, involvement of and the feedback of results to communities participating in studies. There was overall consensus that it was important to continue efforts to link scientists with communities.

Inter-Component Coordination

There was a high degree of complementarity between the contaminants, waste and water components. Because contaminants research activities were well-defined, this was not seen as leading to any duplication of effort. Inter-component coordination was facilitated by the inclusion of the relevant waste and water managers as members of or observers to the Technical Committee. The Yukon region runs a coordinated contaminants and waste program. As a result of these coordination efforts, some projects were co-funded while other proposals made to the contaminants components were redirected to other components.

Objectives Achievement

Achievement of the Component's Stated Objectives

Program delivery is under the direction of the Science Managers' and Technical Committees, which has fostered a true partnership among program participants. This includes the five AES Aboriginal Partners, other federal departments and the government of the Yukon and Northwest Territories. Most lines of evidence concluded that DIAND had achieved its objectives in this area. Of the priority areas established for the research program, objectives were met for the identification of contaminant sources and their transport to the Arctic and the assessment of contaminant levels in fish and wildlife. Significant progress has also occurred on the international front in the development of agreements and enhanced cooperation. Work remains to be done to meet objectives for the assessment of the effects of contaminants on the health of northern ecosystems including human health and the provision of timely health advice to northern people. While all work was performed with the ultimate goal of achieving the overall objective of eliminating or reducing contaminants in country foods, this wording may be overly ambitious to make such an objective achievable within the strategy's time frame.

Project Profile and Achievement of Objectives

Projects funded under this component were subjected to critical peer review at both results presentations workshops and during the annual competitive process itself which determined which projects would receive the continued support of the program. A shift in emphasis emerged as the Northern Contaminants Program evolved. An increasing number of projects were undertaken dealing with human health research and the ways in which this information could be disseminated to the people of the north. It was noted that a strategic plan for communications was evolving and that these efforts would "form an important basis for much of the work to be undertaken in the coming years." It was apparent from the projects sampled for the evaluation that efforts have been made on multiple fronts to ensure that overall objectives are met.

Table 3 gives an overview of the research directions of funded projects which were sampled for project leader interviews. The scope of topics suggests that projects funded were clearly intended to address the stated objectives.

Table 3: Overview of Project Areas

ENVELOPE	TOTAL	Overall %	% of Envelope
"A" Projects: Sources and Pathways to	11	28%	
Atmospheric Arctic	6	15%	55%
Marine Arctic	4	10%	36%
Food Web	1	3%	9%
"B" Projects: Ecosystem Uptake and Effects	11	28%	
Fish	4	10%	36%
Caribou	4	10%	36%
Birds	2	5%	18%
Snow/ice caps	1	3%	9%
"C" Projects: Human Health Risks	12	31%	
consumption of multiple country foods	7	18%	58%
food chain and other transmission	5	13%	42%
"E" Projects: Education and Communications	5	13%	13%
TOTALS	39	100%	

A large majority of project leaders interviewed believed their research yielded definitive results. They were satisfied, overall, that their work had met objectives. Forty per cent indicated that their research had fully met the objectives established at the beginning of the projects. Another fifty-three per cent fell into the "partial" category, but their responses often implied near perfection. For example, references included "highly successful", "90 per cent", "quite pleased" or had "almost completely" met objectives. Only two respondents stated that their projects failed to meet objectives.

Intended Impacts

This section discusses the intended impacts of the AES Action on Contaminants component. All program participants were asked to comment on the stated objectives of the component and determine whether they have been realized.

- ***Improved knowledge of contaminant sources and transport mechanisms***

The file review of projects and interviews with program administrators, participants and project leaders showed that the initial focus of Contaminants research projects were on this area of research. Based upon the random sample of 39 projects, 28% dealt with this area. Of these 15% were targeted at contaminants sources and transport mechanisms in the atmosphere, 10% in the marine environment, and 3% in the food web.

Most officials and researchers interviewed agreed that objectives were met for the identification of contaminant sources and their transport to the Arctic and the assessment of contaminant levels in fish and wildlife. The views of the government and aboriginal stakeholders are supported by the project leaders, 95% of whom believed that their projects had yielded definitive results in this area of research. While the general consensus was that increased understanding was most evident within the scientific community and among aboriginal groups, there was also a sense that this information has filtered down to the community level.

The major findings, as stated in the *Synopsis of Research Conducted Under the 1993/94 Northern Contaminants Program*, were

- the majority of contaminants detected in the biotic and abiotic environment of the Arctic are derived from sources outside the Arctic and outside Canada;
- the atmosphere plays a major role in the transport of contaminants to the north; and,
- measurable and often significant levels of a number of contaminants occur in a wide range of important country food species, as well as in other ecosystem compartments.

- ***Improved knowledge of magnitude, geographic extent and duration of the problem***

All lines of evidence pointed to a major increase in knowledge and awareness of problems with contaminants as a result of the increased research activity under the AES. Both officials and researchers noted a positive impact in terms of knowledge gained both at the scientific and community levels. Although there is progress on the identification of contaminant levels in fish and wildlife, longitudinal issues must still be addressed. Inroads have been made on geographical issues as the science has shown the steps in the food chain to be the most relevant in determining contamination levels of food.

- ***Improved knowledge of effects of contaminants to the Arctic ecosystem, including human health***

There was less consensus on objectives achievement in the assessment of the effects of contaminants on the health of northern ecosystems and Northerners. Some community representatives suggested that country foods were relatively free of contaminants, and raised concern over the lack of follow-up information after tests were conducted. This position was also taken by some representatives of the Aboriginal Partners in the regional reviews. Community members suggested that governments should do something about the sources of contamination before traditional foods are affected. There was a general sentiment that the elimination or reduction of contaminants in country foods was too ambitious an objective to be fully achievable within the strategy's relatively short time frame. Although this area will be a priority for funding for the remainder of the AES, there was overall consensus that more time and resources must be channelled to this work to achieve a significant impact.

- ***Improved knowledge of the relative risks and benefits to humans from the consumption of the harvested animals***

The majority of officials said there was improved knowledge of health risks. There was widespread acknowledgement of the need to position the risks in balance with the nutritional benefits of country food consumption. Most lines of evidence support the conclusion that there is greater awareness now among northern aboriginal people. There was some support for longitudinal studies in order to improve understanding of the risks to human health. It is known that there are both risks and benefits to consuming country foods, but knowledge of the long term health effects of contaminants is still not adequate. Given the overall lack of knowledge on effects of chronic low-level exposure via food to persistent contaminants, there was general acknowledgement that this will require significant resourcing over time.

- ***Renewed confidence in traditional foods***

While there was general agreement from all lines of evidence that confidence in traditional foods had improved as intended, a significant minority pointed to an unintended erosion of confidence during the early years of the AES. This subject elicited the most reaction in the context of impacts. Many officials saw the overall situation as being a tradeoff between the risk of contamination and the benefits of nutrition in information dissemination.

Officials who saw lower confidence overall supported more emphasis on promoting the benefits of a country diet, which they believed would reinforce confidence. Some government officials and community representatives suggested that the very act of studying foods was enough to raise concerns in some communities.

- ***Human health and environmental protection measures established and timely advice to northern people provided***

In general, human health and environmental protection measures were not frequently mentioned as impacts of contaminants research. It was observed regularly, however, that better quality information had emerged which would allow Northeners to make informed decisions. Progress is slower on the provision of timely health advice to northeners, one of the key elements of the Action on Contaminants work plan.

- ***National and international research coordinated***

A few officials pointed to results such as research coordination and inter-departmental cooperation. There was some thought that the impetus for national coordination and discussion stemmed from the annual competitive process for project funding. Some officials thought that the contaminants component had facilitated much more communication of results and activities than other science programs. Improved communication and research coordination between circumpolar countries were associated in large part with Canada's lead role in the Arctic Environmental Protection Strategy (AEPS) and its working group, the Arctic Monitoring and Assessment Program (AMAP), and the United Nations Economic Commission for Europe (UNECE).

- ***International controls and initiatives to address contaminants established***

Several sources of evidence supported the view that significant progress has occurred internationally with respect to the development of new agreements and enhanced cooperation. Regional officials and research project managers believe Canadian data to be capable of supporting policy makers and diplomats to begin pressing for change internationally. Although new international controls are not yet in place, progress has been good, with Canada sharing joint leadership with Sweden in a 1994 task force through UNECE to confirm the necessity for a legally binding international protocol on POPs under the Long-Range Transboundary Air Pollution (LRTAP) Convention. Government officials believe that at present, UNECE is the only avenue which is likely to enable concrete change in such controls in the foreseeable future. Authority to proceed with preparation of a draft text for negotiations for the protocol was obtained in November 1995, with Canada assigned the lead role. The AES in general and the Contaminants Component in particular have provided the necessary information to support Canada's policy position in the AEPS and AMAP. The need was noted for continuing support and additional research to sustain the momentum. The Partners' evaluation points to the ICC's instrumental role in keeping the issue of contaminants in country foods "in the forefront of the diplomatic agenda for circumpolar nations under the AEPS initiative."

- ***Full Aboriginal participation assured***

The participation of the five AES Aboriginal Partners was cited almost unanimously as one of the major successes of the contaminants component. It was noted that this was an important part of the program design and that a true partnership had been achieved. One unanticipated impact raised was the manner in which partnership development had resulted in capacity building and increase in trust at the community levels. Aboriginal Partners noted that this partnership could not have occurred as effectively as it did without the funding that supported it. Funding was seen as a basic element of the capacity building that has occurred within the organizations both regionally and locally. Several lines of evidence noted the importance of the successful establishment of CINE.

- ***Establishment of CINE***

CINE was seen as having had an impact particularly with Dene and Métis and CYFN communities. They believe the centre has been highly visible in its work which includes a great deal of training of aboriginal people and that there is a strong awareness of it in northern communities. The project leader interviews confirmed the importance of CINE's work.

Other Impacts Identified

- ***Lack of an interpretive mechanism***

A number of participants in the project leader interviews were concerned that sunsetting the Program might have the unintended impact of leaving a gap where expectations had been generated. Some regional officials thought that the problem was the lack of a built-in interpretive mechanism to explain the impacts of current findings on human and environmental health. In the words of one project leader, "...with the results from this program, we can tell northeners what they're being exposed to, at what levels, and sometimes where a contaminant is coming from. But in many cases, we are unable to tell them what it all means..." This sentiment was echoed in the Aboriginal Partners' evaluation which concluded that the greatest challenge to this program is to make the research results relevant to the people most affected by contamination.

Unresolved Needs

It was generally agreed that there were very few unresolved needs relating to implementation, but areas were noted which require further work. Unresolved issues were often seen as a product of the initial assessments conducted under the program. Several lines of evidence raised the view that work is in its early stages with respect to communicating results to communities and emphasized the importance of expanding education and communication efforts so that information is properly understood at the community level. Similarly, topics related to the impacts on human health were seen as commanding top priority in the future research agenda. This is essential for accurate risk-benefit assessments of country foods. Regional officials and project managers noted a need for international action, rather than dietary restrictions, to eliminate sources of contamination.

Continuing Relevance of the Action on Contaminants Component

Appropriateness of Objectives

Evidence from all sources indicates that the contaminants objectives remain appropriate. A number of regional officials remarked that the structure and management of the Contaminants Component enabled an iterative process through which objectives could be modified and work priorities changed on the basis of the latest scientific evidence. Some Aboriginal Partners noted that the strategy for dealing with human health and contaminants in food has changed from recommending consumption avoidance to helping people make informed decisions.

Evaluation participants noted the difference between short term and long term approaches to contaminants issues. While short term measures might involve avoiding the consumption of certain foods, long term measures require international controls on the sources of contaminants. Several officials pointed to the need for a more direct link between the contaminants research and the bottom line, human health.

Opinions varied as to the need for continued monitoring. There was, as noted earlier, some support for a greater focus on action and communications, while project managers believed that the identification of sources has only begun and must be monitored over time.

Project managers considered the work to remain relevant, and offered a variety of reasons, including: filled a gap in scientific knowledge (30%); served to aid in protecting the health of the environment's and/or local citizens (25%); data could be used to provide or enhance the accuracy of predictive models (20%); enabled planning, provided policy guidance or enhanced communications and information function (15%). Approximately ten per cent of the group did not answer the question. Most researchers noted that the data being produced could prove valuable if contaminants levels were monitored into the future.

Linkages or Overlap

Most participants in the Contaminants Component agreed that the potential exists for overlap between the contaminants and water quality programs and the contaminants and waste programs due to the high degree of complementarity between these components. For example, the debate in the Yukon about the source of toxaphenes crosses over both waste and water. Overlap was not viewed as problematic, however, because the contaminants activities were believed to be better defined than most programs. The interdependence was recognized, and the relevant water managers sit on the Technical Committee while the Yukon region runs a coordinated contaminants and waste program. Program participants were confident that while the subject areas may overlap, there had been no duplication in the work undertaken. Indeed, some participants advocated the need for greater interdependence, suggesting that the components should be less compartmentalized.

While other A-base and Green Plan work under the direction of Health Canada is closely related to work carried out under this Strategy, no areas of overlap were identified during the course of the evaluation.

Continuing Relevance

The evaluation found that the work conducted under the Contaminants Component continues to be relevant on a number of fronts. Evaluation participants noted that there is still much to be learned about the long-term effects of contaminants on human health. Without sufficient study of the health impacts derived from geographically-specific dietary information, communications strategies aimed at restoring confidence will be handicapped by the harder scientific evidence related to contamination of the food chain. Informed decision-making by Northerners cannot occur without full appreciation of the risks and benefits of the country foods actually being consumed.

Canada's commitments internationally presuppose a strong domestic commitment to the Arctic environment. Contaminants research continues to be relevant to the provision of evidence needed to support the control and eradication of contaminants sources internationally. The role played by Canada to date is easily rationalized by the proportion of domestic land mass and population at risk.

Improvements and Alternatives

Strengths and Weaknesses of the Contaminants Component

Evidence from all sources was that strengths outweighed identifiable weaknesses. Almost all sources pointed to the partnerships forged within this component as being its greatest strength. In fact, the Aboriginal Partners' evaluation identified the Contaminants partnership as the most effective of all components. Based on several lines of evidence, this evaluation found the following elements as characterizing the major strengths and weaknesses of the Contaminants Component:

Strengths

- The direct and full participation of Aboriginal Partners and the buy-in of all Northerners as a result of consultations at outset
- Competitive environment which encouraged strong team play and collaboration
- Shared direction of research by scientists, communities, and aboriginal people and new interdisciplinary cooperation; Co-management has been crucial to success
- The fact that CINE happened; CINE's approach has helped aboriginal people to have confidence in food
- Breadth of organizations involved and depth of scientific expertise
- Committee system is seen as an effective means of generating competition for funds
- Information-sharing through workshops is a valuable coordination tool

Weaknesses

- Early lack of communications with communities participating in research which sometimes resulted in misinterpretation of research results
- Overly alarmist early communication strategies regarding contaminants in food
- The current definition of "Arctic" was seen to limit program efficacy
- Funds were sometimes received late for purposes of research
- Concern the AES will terminate when expectations are rising

Areas Identified for Improvement

- ***Improved efficiency for project implementation***

There were areas identified for improved efficiency in project implementation. It was suggested, for example, that benefits would derive from more comprehensive auditing of where the money was going and how it was fed into the system. It was acknowledged that such an effort was limited by funds available for administration. Another potential area of inefficiency, identified by officials, project managers and Aboriginal Partner groups, related to the year-by-year approach of the competitive process which made it difficult to implement multi-year projects with confidence that funding would be sustained.

- ***Funding Process***

The funding process was viewed less favourably in the NWT and Yukon. This should not be surprising, given the centralized management of the component, as opposed to the other AES components which were managed by territorial committees. Most critics, however, acknowledged that the system may be appropriate.

The envelope system has been in effect for almost two years. In theory, allocation levels are established by the Science Managers' Committee, but some Aboriginal Partners and project coordinators believed that real control rested with DIAND headquarters personnel. Some officials in the Territories would have preferred greater flexibility for the committee to revisit allocation levels after the technical assessment of proposals. Some questioned the legitimacy of allocations which were not open to deliberation (e.g. core funding to CINE).

- ***Communications***

There was evidence from all sources that there are concerns with the adequacy of communications. The Aboriginal Partners' evaluation, regional officials and project leaders acknowledged shortcomings in this area. Project leaders believed that increased community awareness about various health issues over the past few years dictates a need for communications to continue beyond the life of the Program to meet growing expectations. Some scientists felt that a lack of experience in northern cultures may have impeded their ability to communicate effectively with Northerners.

- ***Coordination***

A number of views were expressed that coordination with the other AES components could have been better. It was noted that representatives from water and waste participated as members or observers on the headquarters and regional contaminants committees, which had prevented any overlaps or duplications. Nevertheless, there was support expressed for greater transparency in coordination to facilitate a more holistic approach to the AES.

5. CONCLUSIONS

The following conclusions can be made about program implementation and delivery under the Contaminants Component.

Significant progress has been made in the achievement of objectives, although further work is required in certain areas such as the effects on human health and the interpretation and communication of results to Northerners. Much of the work has created expectations that there will be follow-through on the problems identified.

The Contaminants Component demonstrated the feasibility and benefits of real working partnerships in program design and delivery. The competitive process and envelope system were viable management tools which promoted accountability and strategic planning.

Improvements were noted in both the way research involving northern communities is conducted and the manner in which information and results are communicated to Northerners. Greater recognition was given to the need to balance information communicated to allow for informed decision-making. There was a favourable view of work conducted by CINE among northern communities.

Canada has a major role to play in Arctic environmental protection and management at the international level, and this role will require a strong commitment domestically.

Annex C

Action on Waste

Table of Contents

Page

1. PURPOSE OF THE ANNEX C-1

2. METHODOLOGY C-1
Regional Officials Interviews and File Review C-1
Project Leader Interviews C-2
Community Visits C-2
Self-Evaluations and Statistical Review C-3
Literature Review C-3
Aboriginal Partners Evaluation C-3

3. ACTION ON WASTE PROFILE C-3
Background C-3
Objectives and Rationale C-4
Primary Activities C-4
Structure C-4

4. ANALYSIS OF RESULTS C-5
Implementation Status and Efficiency C-5
Objectives Achievement C-9
Continuing Relevance C-13
Improvements and Alternatives C-14

5. CONCLUSION C-16

ANNEX C
Action on Waste

1. PURPOSE OF THE ANNEX

The purpose of this Annex is to consolidate and present findings related to the Action on Waste component of the Arctic Environmental Strategy (AES). The findings from this Annex are incorporated in the overall AES evaluation report.

2. METHODOLOGY

The following sections outline the methodology utilized to gather evidence related to the Waste component, and describe lines of evidence and various inputs utilized to formulate findings.

Regional Officials Interviews and File Review

Interviews with government and Aboriginal Partners were conducted in each territory and the National Capital Region. In addition, a review of files was conducted to corroborate interview evidence. Table 1 contains the distribution of officials interviewed who had direct involvement in the Waste Component.

Table 1: Interviews in Regional Reviews by Organization and Region

Organization/ Region	National Capital Region	Yukon	Northwest Territories	Total
DIAND	2	2	4	8
Aboriginal Partners	0	1	2	3
Territorial Governments	0	2	0	2
Other Federal Departments	0	1	1	2
Other Organizations	0	0	0	0
Total	2	6	7	15

Project Leader Interviews

A random sample of waste component projects was selected for the purpose of interviewing project leaders. Interviews were conducted in the Yukon and Northwest Territories from December 1995 to February 1996. A total of 108 waste component projects were selected representing a sample size of 9 percent: 57 in the NWT; and 51 in the Yukon Territory. Table 2 illustrates the number of interviews conducted by region specifically related to the Action on Waste component.

Table 2: Distribution of Project Interviews by Region

Region/Project Type	Number of Projects	Number of Interviews
Northwest Territories		
Inventoried	19	16
Assessed	14	8
Cleaned	24	21
TOTAL NWT	57*	45
Yukon Territory		
Inventoried	17	20
Assessed	20	13**
Cleaned	14	20
TOTAL Yukon	51	53
TOTALS	**108**	**98**

Notes: * One NWT project was composed of three separate projects.
** Two people were interviewed for each of two projects.

Community Visits

Three case studies were conducted during the period December, 1995 and January, 1996. Interviews were conducted with community representatives including Chief and Council, staff, project leaders, elders, and relevant community organizations. In addition, non-Aboriginal representatives were interviewed for their perspective on local AES projects. Table 3 provides a delineation of interviews specifically related to the Waste component.

Table 3: Number of Waste Component Interviews Conducted by Community

Community	Number
Fort Simpson, NWT	~12
Cambridge Bay, NWT	~2
Carcross-Tagish, Yukon	~10
TOTAL	**24**

Self-Evaluations and Statistical Review

A self-evaluation questionnaire was distributed to relevant AES officials in the NCR, NWT and Yukon. The purpose of the review was to assess a random sample of projects relative to the evaluation issues. A total of 183 AES projects were selected. Of these, 159 self-evaluations were returned. With respect to the Action on Waste component, 96 waste component projects were selected. In total, 45 projects were examined in the Yukon, and 51 projects in the NWT.

Literature Review

A review of literature related to environmental programs and activities within Canada and other jurisdictions was carried out to provide additional information regarding possible lessons learned, and recommendations for improvements which might be applicable to the AES.

Aboriginal Partners Evaluation

In March of 1995, the Aboriginal Partners prepared an assessment of the Arctic Environmental Strategy. It examined the nature of the Strategy, its components, and the partnership between Aboriginal Peoples and federal/territorial governments. Specific findings related to the Waste component are included in this assessment.

3. ACTION ON WASTE PROFILE

Background

Prior to the implementation of the AES, the Northern Affairs Program had neither a complete assessment of the number of waste sites in the North or a clear view about the extent of waste at those sites. Prior to 1972, there was little regulation governing land use in the North. As such, it is the responsibility of the Crown to clean up waste sites in those instances the responsible party can not be located. Although the responsibility for clean up rests with DIAND, an inter-agency waste priority clean-up committee was established in each territory to assist in the coordination and administration of the program.

Objectives and Rationale

The overall objective of the Waste Management Component is to clean up waste material abandoned on northern Crown lands. This program forms part of a long-term commitment to clean up the North.

Given that DIAND has principal responsibility for the management of over 90 percent of lands in the territories, it is incumbent on the Department to take responsibility for the lands it administers. The pace and scale of projects to be implemented are designed to be consistent with the capacity of northern communities so that local participation in these efforts may be maximized.

Primary Activities

There are four principal activities that comprise the Action on Wastes component: Project Identification and Assessment; Project Prioritization and Selection; Project Remediation; and, Follow-up activities. Project Identification and Assessment involves the development of a waste site inventory. The inventory is maintained on an ongoing basis. Once a site is placed on the inventory, it is assessed according to established criteria. The Project Prioritization and Selection activity uses prioritization criteria to determine which sites pose the greatest risk. Under Project Remediation or Clean-up, high risk sites are addressed. The Follow-up activity ensures adequate accountability via inspections and regular reports.

AES Action Plan: Action on Wastes

Objective: *Eliminate unsafe, hazardous and unsightly waste.*

Work Plan:

- Clean up of known hazardous wastes;
- Identification, assessment and remediation of suspected hazardous wastes;
- Clean-up of 21 abandoned DEW line sites;
- Clean-up of wastes near communities;
- Support of local waste management strategies.

Result:

- A safer and more aesthetically pleasing environment.

Structure

The AES is built on partnerships[1] between Aboriginal groups, federal and territorial governments and the private sector. Management of the strategy and each component is achieved through a committee structure. The most senior committee is the AES Partners' Committee which involves DIAND Directors at Headquarters and in the two territorial regions and representatives from the five Aboriginal Partners Organizations. DIAND Headquarters provides the administrative support for this committee. Overall coordination of the component is the responsibility of the Land Management Division at headquarters. The program is delivered through the regional offices in Whitehorse and Yellowknife.

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[1] Key partners include the five Aboriginal Partner organizations, DIAND regional offices, DIAND headquarters, and several other departments of the federal and Yukon and NWT Territorial Governments.

The Yukon Waste Steering Committee provides the direction and priorities for Yukon Waste Clean-up projects. It is chaired by the DIAND region with representatives from DIAND Yukon region, the Council of Yukon First Nations (CYFN), Environment Canada and the Yukon Territorial Government (YTG). The Contaminants and Waste components are jointly administered in the Yukon with the same official acting as chair of both committees.

The NWT Waste Priorities Advisory Committee was established to include representatives from several departments of the GNWT, the Dene and Métis Nations, the Inuit Tapirisat of Canada (ITC), Environment Canada and the DIAND region. The committee's role became unclear as regional priorities changed, with a limited voice in the decision-making process.

4. ANALYSIS OF RESULTS

Implementation Status and Efficiency

Implementation Status

The approaches used to manage waste varied by region.

Yukon

> Overall, implementation in the Yukon Territory appears to have been accomplished in a smoother manner than in the Northwest Territories. Aboriginal Partners raised fewer concerns in the Yukon, although the issues and community structures vary between the two regions. They felt that this region adhered to a plan of involving communities and partners and this was reflected in the views of partners. The level of risk, ability to manage risk and cost estimates form the foundation for planning and priority setting in this region.

NWT

> Regional officials appeared to be very concerned about DIAND's legal obligations with respect to *CEPA* violations, which resulted in less flexibility for allocation beyond "non-discretionary" activities. Consequently, there was less of a decision-making role for the Aboriginal Partners.

Overall Implementation

Most interviews in the Yukon suggested that implementation proceeded as planned while those from the NWT did not concur. It was pointed out that to expect implementation to have occurred according to plan would be unrealistic, given that objectives were not revisited following the sharp budget reduction from $400 million to $28 million. Several officials estimated that $1-8 million would be required to clean up each DEW line site alone.

According to the self-evaluations, 52 percent of sampled waste projects have been completed and 26 percent are ongoing. Twenty per cent of projects are either not inventoried to date, have work which is incomplete, have pending clean-up, or involve sites which pose low risk.

Implementation Status of Each Action on Waste Element

Clean-up of Known Hazardous Wastes

Regional officials and project leaders reported that approximately 20 percent of the identified and assessed volume of hazardous waste clean-up is ongoing and will not be completed prior to the end of the AES given the magnitude of these initiatives. Most of this work is being undertaken in the NWT. It was believed that with about 60% of the volume of hazardous waste cleaned-up overall, a start had been made and the highest priorities had been addressed to date. A few regional officials noted that the clean-up of several more DEW line sites would raise the completion rate to 90% given that the proportion of hazardous waste relative to the total is high in these sites. A major constraint to the clean-up of these sites is their remoteness thereby adding to transportation costs. Overall, new hazardous waste sites are being found regularly in both the NWT and Yukon due to mining and military activity.

Identification, Assessment and Remediation of Suspected Hazardous Sites

All lines of evidence indicated that the identification of suspected hazardous sites has been completed as per plan with the *caveat* that activity will always be ongoing in this area. Assessment of sites identified is in progress and almost complete. All DEW line sites and NWT mine sites have been assessed. The ratio of completed assessments was reported to be somewhat less in the Yukon where the mining industry has left more, albeit smaller, sites. Although the clean-up of suspected hazardous sites progresses, completion is not expected by the end of the AES. As part of the sampling of projects undertaken by the evaluation, it was found that the database of inventoried sites is not always current. This finding was confirmed by the case studies and interviews with project leaders. Ensuring that the currency of the database is important because the government requires current information to fully enforce its regulatory role.

Clean-up of 21 Abandoned DEW Line Sites

To date, two of DIAND's 21 abandoned DEW line sites have been cleaned up. Clean-up of the remaining sites is expected to continue beyond the AES time frame and will be dependent upon sufficient funds being allocated for this purpose and the level of risk associated with the sites. Some regional officials noted that one DEW line site had been cleaned up due to Departmental commitments over and above its AES responsibilities (i.e. land claim). However, AES funds were used for this purpose. Aside from financial constraints, some regional officials noted that a commitment is being sought from the U.S. government to assist in the clean-up of the DND DEW line sites.

Clean-up of Wastes Near Communities

Initially, waste clean-up near communities had a higher profile within the component. It has now assumed a minor role ("unsightly but not dangerous") as greater priority has been assigned to hazardous sites. It was reported that there is some work in progress and that clean-up to date has involved a large number of sites such as hunting camps and dump sites.

In an effort to assist communities and government departments in their clean up activities, the AES waste programs in the Yukon and NWT purchased metal shredders. Many regional officials and project leaders in both territories were concerned these shredders are being under-utilized at great expense to the Crown. In the Yukon, officials indicated that inadequate funding is available for maintenance due to disagreement between the federal and territorial government departments over jurisdiction and other issues. In the NWT, several regional officials noted the shredders are virtually unutilized for reasons of inadequate funding and the logistics and costs for transport between remote communities.

Support of Local Waste Management Strategies

It was reported that funds to support local waste management strategies were diverted to other areas of the Waste Component, particularly in the NWT where regional officials argued that most funds were to be used to address the government's legal, health, and safety obligations. It was suggested by regional officials and some project leaders that work in this area was supported by the Environment/Economy Integration Component through CRMP more so than this component.

Efficiency of the Component

Management and Administrative Structures

Assessments of the organizational efficiency of component activities ranged from inadequate to excellent. Higher ratings were consistently attached to the organizational efficiency of activities which took place in the Yukon and what was seen as a higher degree of accountability in that region. Both Partners and government officials noted some difficulties at the commencement of the Strategy in the Yukon. Efficiency was seen to improve substantially with the arrival of new program management.

Efficiency ratings of activities in the NWT were coloured by participants' satisfaction with their consultative roles within the component. Those who believed DIAND should have direct control over identifying liabilities gave adequate or excellent ratings for project identification and assessment activities. Those dissatisfied with the level of consultation gave less favourable assessments. Project prioritization and selection in the NWT were similarly seen by regional officials and Aboriginal Partners as being driven by legal liabilities and it was suggested that a lack of management control resulted in little emphasis being place on specific planning and priority-setting activities. Somewhat higher ratings were accorded to project clean-up and follow-up activities which were seen to have a significant level of local support.

Committees

Regional officials from the Yukon believed that committees within the Waste Component helped to facilitate the achievement of objectives, while those from the NWT did not. It was felt that the Yukon Waste Steering Committee was a good forum to vet concerns. Committee members believed information exchange within the program to be important.

In the NWT, regional officials said that the committee was told what the priorities would be and that this might have been done differently if it were not for the health, safety, and legal obligations. However, it was suggested by some regional officials that priorities could be set despite such obligations. It was noted by Aboriginal Partners and project leaders that increased funding would provide greater latitude to address a wider array of projects.

Project leaders in the Yukon indicated frequent contact with Yukon Waste Steering Committee. Approximately 70 percent of respondents that offered comments in the Yukon said they communicated with the committee. In the NWT, the degree of communication was opposite. Approximately 18 percent of NWT project leaders said they communicated with the NWT Waste Priorities Committee.

Clarity of Roles

Most regional officials and project leaders reported that the participant roles were clearly defined within the Waste Component. In the Yukon these participants were satisfied with the current division of responsibilities and the clarity of stakeholder roles including the CYFN. It was indicated that a sufficient amount of authority had been given to local and regional people.

Evidence from interviews in the NWT supported the need for improvement in the division of responsibilities. Some regional officials found confusing directions from different levels of DIAND management, and there was some degree of disagreement about the appropriate level of accountability between the NWT region and DIAND Headquarters. The appropriate role of the Aboriginal Partners was also contended, especially with the recent emphasis on meeting the Department's legal liabilities. Some officials in the DIAND Region also suggested a preference to deal directly with local communities on a project-specific basis, with the umbrella organizations being kept informed.

Project Implementation

Project leaders noted a number of implementation challenges. In the NWT, approximately ten percent of projects encountered delays in receiving funds. They noted that such delays often stalled payments to contractors or the rental of necessary equipment. In the Yukon, one project exceeded the budget because aspects of the remediation were found too costly. Both regions experienced difficulty in finding appropriate staff, which sometimes delayed work. In addition, both regions experienced planning and logistical problems with finding appropriate equipment to conduct the work, inadequate information to complete the job, or encountered unexpected waste materials which raised costs.

Objectives Achievement

Achievement of the Component's Stated Objectives

Regional officials and Project Leaders noted that the objectives for the Waste Component were achieved within the current funding level. It is important to note, however, that the original cost estimate to meet all objectives was $400 million. Although AES allocated funding was significantly less at $28 million per year (Note: funding was augmented by other departmental sources), the program objectives were never revised. Priorities were shifted during the strategy, resulting in less effort being directed to community clean-up of non-hazardous waste sites, particularly in the NWT. DIAND officials estimated that this new allocation would be insufficient to clean-up the DEW line sites alone. To date, suspected hazardous sites have been identified, assessed and prioritized. Clean-up of about 60% of the volume of known hazardous wastes has occurred, and two of 21 DEW line sites have been cleaned-up.

Project Profile and Achievement of Objectives

The objectives of most community clean-up projects in the NWT were to remove abandoned mineral exploration, fishing, or traditional harvester camps. Other projects included cleaning up areas around communities, abandoned air force bases, and tailings ponds. In the Yukon, most community clean-up projects involved removing metal waste from abandoned industrial and military projects. Other projects involved cleaning up abandoned exploration camps and sites alongside highways. The duration of most of these projects ranged from one day to 18 months.

Both the Yukon and NWT had similar assessment projects. Projects were initiated to conduct a preliminary assessment of sites to determine risks to the environment and/or human health. These involved the collection of soil, water or biota and, in some cases, hazardous materials. The purpose of such projects was to determine risk, and/or to assess clean-up responsibilities.

The objectives of Inventory projects were to determine their priority for clean-up based on risk to the environment and to human health. In both jurisdictions, such projects were conducted by DIAND staff, particularly in the NWT. In the Yukon, such projects were conducted jointly by DIAND staff, territorial departments, private companies or organizations, and First Nations. The duration of such projects ranged from one day to six months.

Overall, project objectives in both the NWT and Yukon were achieved, although in varying degrees. Table 4 summarizes project leaders' responses with respect to achievement of objectives. Response rates were 50 percent in the NWT and 70 percent in the Yukon.

Table 4: Project Leader Responses to Achievement of Project Objectives

Region	Fully Achieved	Partially Achieved	Not Achieved
Northwest Territories	75%	21%	4%
Yukon Territory	89%	11%	0%

Similar findings were noted via the self-evaluations of projects where approximately 76 percent of projects across both territories were identified as having fully realized their objectives, and 14 percent having not achieved their objectives. Eight percent of projects had yet to be inventoried, and, for the remainder, interview participants did not comment or did not know. With respect to community visits, residents in Carcross-Tagish were fully satisfied with the clean-up effort. In Fort Simpson, residents were satisfied with the clean-ups and noted that the project proceeded as expected.

Intended Impacts

The following is a discussion of the intended impacts of the AES Waste Management Program. All respondents were asked to comment upon the stated objectives of the program and determine whether and the extent to which they have been realized.

- ***Waste material on Crown land cleaned up***

Regional officials indicated that the extent of clean-up on Crown land is being determined currently. Several noted that the clean-ups which have occurred have resulted in improved environmental quality. They added that there are several examples of aesthetic improvements which have occurred as a result of local community efforts. Some project leaders indicated that contaminated soil has been removed from sites which pose health risks. Most material that is removed, however, tends to be scrap metal, oil drums, wood products and other waste materials.

- ***Northern employment and business opportunities created***

Many regional officials believed that waste management activities had impacts on Northern employment and business opportunities. They considered the primary impact to have been on short term jobs, but several referred to the capacity building which had resulted from community involvement, equipment acquisition and training of lay persons. It was noted that an effort had been made to ensure local people got the jobs and that skills developed were potentially transferrable.

According to project leaders, employment was created particularly with the larger projects. They associated direct employment impacts with approximately 35 percent of the clean-up projects sampled. In addition, they noted that training had led to significant skills transfer. One NWT project leader estimated that $5 million had flowed into Iqualuit's economy. Clean up projects yielded the most economic benefits. Project leaders indicated that almost one-third of Yukon clean-up projects spent 100 percent of funds in the North compared with approximately 20 percent of NWT projects.

According to AES officials (Self-Evaluation Guides), an average of 75 percent of funds spent on waste projects remained in the North. Table 5 further delineates expenditures per annum.

Table 5: Estimate of Northern Expenditures and Allocations for Labour

Fiscal Year	# Projects	Annual Expenditures	Average Project Expenditures	% of Funds Spent in North	% of Funds Spent on Labour
1991/92	14	$349,332	$24,952	59%	12%
1992/93	10	$302,248	$30,225	83%	18%
1993/94	18	$536,214	$29,790	68%	18%
1994/95	22	$2,508,173	$114,008	83%	31%
1995/96	6	$919,000	$153,167	75%	26%
TOTAL	**70**	**$5,179,968**	**$74,000**	**74%**	**21%**

Source: Self Evaluations Guide Findings and Statistical Review, Departmental Audit & Evaluation Branch, DIAND.

With respect to employment, of the six percent of projects sampled, respondents reported an estimated 441 weeks of employment created. Specifically, 53 percent of clean-up projects, and 28 percent of assessment projects reported direct employment benefits. In addition, 35 percent of sampled clean-up projects reported indirect employment benefits.

- ***Increased knowledge and awareness associated with waste management***

All lines of evidence point to communities having gained a greater appreciation for difficulties associated with waste management, and the fact that communities realize waste management responsibility rests with residents. Equally important, some project leaders said that it was incumbent on Northerners to raise awareness among southern residents about the extent and types of contamination in the North. They said that many northern communities are seeking solutions to waste management in partnership with government, private industry, and other communities in similar circumstances. Traditional land users have been influenced by the AES in terms of finding safer and more responsible methods to perform their work.

- ***Selected community waste management strategies supported***

Several regional officials and AES partners believe there has been an improvement in the quality of information available to make informed local decisions. They said that there had been a positive change in the way DIAND does business with local communities. This was associated with the government's approach to developing a clean-up ethic through its commitment to the development of overall processes and procedures for managing risks and handling wastes. It was explained by a few regional officials and project leaders, however, that the breadth in types of information is still lacking, and that local decision-making can potentially be responsive to hearsay.

- ***Risks posed to humans, wildlife and the environment reduced***

Several regional officials and project leaders indicated that risks have been reduced to the extent that some major hazardous sites have been cleaned up. Project leaders said that priority sites have been cleaned up to the satisfaction of communities, although much is still left to be completed. Clean-up of sites containing PCBs and other toxins reduce risk to wildlife and land users. Residents of Carcross-Tagish indicated that the clean-up of the Venus Mine tailings pond was vitally important in this regard. Residents said the site posed a significant health risk to the community. In their view, clean up of sites of this nature reduces risk to wildlife and plant life in the area.

Other Impacts Identified

- ***Community pride fostered by clean up of waste sites***

Project leaders indicated that pride in communities has been seen to have improved as a result of cooperation among residents. More importantly, the training and education derived from these projects have significantly enhanced the availability of skills. Some leaders are considering offering services to other communities, based on their experience.

Unresolved Needs

- ***Clean-up of Hazardous Waste Sites Requires Ongoing Attention***

Evidence from all sources was that the job of waste clean-up is not complete. Some regional officials and community representatives suggested a need for additional legislation to deal with mining and environmental protection. They felt that tighter legislation for land use and stronger enforcement would ensure the adequate clean-up of abandoned sites by mining companies. Some project leaders and community visits participants suggested that the federal government adopt a "user or polluter pay" policy to assist in the clean-up of outstanding sites.

- ***Community priorities still require attention***

Some project leaders indicated that the priorities of many Aboriginal and non-Aboriginal communities require attention. Given that the budget for the component is not adequate to address legal obligations, Aboriginal groups in particular are concerned their needs may not be addressed. They indicated that there are many sites around communities, which, although they pose little risk to human health and safety, require clean-up. They said that Northerners have great difficulty in finding ways to deal with waste. A sound investment for this component would be to determine how to dispose of waste safely and efficiently. These concerns will be alleviated somewhat through the commitment to clean up wastes through land claims.

- ***Greater participation is desired in budget preparation***

Aboriginal Partners in the NWT were not pleased with the level of input they had been able to contribute to budget processes, and viewed the clean-up of communities and support for local waste management strategies as having received insufficient attention as a consequence. Regional officials commented, however, that given the limited budget, legal liabilities must take precedence.

Continuing Relevance

- ***Appropriateness of Objectives***

All lines of evidence point to a view that the objectives of the waste component are thought to be appropriate. It was noted that the objectives have evolved over time due to budget constraints which has resulted in community priorities being dropped. It was noted that the objectives are tighter now, with concentration on higher profile sites. Aboriginal Partners were concerned about the unilateral decision to abandon the local aspect of the NWT waste management component. Project leaders, particularly in the NWT, believe there are more hazardous and non-hazardous sites, and identified 24 other major sites requiring immediate attention. In their view, funds should be made available to complete the original plan as set out by the AES. They also noted that claim holders must be encouraged to clean up sites. In many cases, claims remain active so that clean-up is delayed as long as possible. Fort Simpson respondents indicated that long-term solutions for waste disposal must be devised given the fact that there are currently few options for safe and efficient disposal in the North.

- ***Linkages or Overlap***

Most sources of evidence suggest that activities performed within this component were defined clearly relative to the other components but linkages were noted with each of the other three AES components. Some thought there could have been more overlap in terms of planning and suggested that while the potential exists, there tends not to be a great deal of interdependence on results. Project leaders mentioned that it is often difficult to distinguish which agency has jurisdiction in some areas. In their view, these distinctions should be considered less important than the concern for environmental clean-up.

- ***Ongoing Relevance***

There was general agreement that Waste Component work remains relevant. In spite of concern over DIAND's actions to assign priority to hazardous sites in the NWT, it was generally acknowledged that high risk sites were important and that the issue was one of budgetary limitations.

The evaluation found strong local community participation in the planning and implementation of waste projects to be a critical factor in project success, but no consistency across regions or projects. It was suggested that communities so empowered will take the initiative to identify and clean up local waste problems, but that financial support will be required for larger-scale or higher risk projects.

Partners, communities, project leaders and government officials acknowledged the ongoing relevance of clean-up and pointed to a need to keep data current in the Wastes Inventory of Sites to ensure that future work priorities are based on up-to-date information.

Improvements and Alternatives

Strengths and Weaknesses of the Waste Component

Various strengths and weaknesses were reported for the Waste component itself or as a consequence of participating in it.

Strengths

- Waste sites were cleaned up to the satisfaction of participating communities;
- Partnerships were built between government, communities, and industry which instilled a degree of trust and cooperation not often experienced in government programs;
- The program set in motion a commitment to clean the environment;
- AES staff were seen as valued advisors and resources by communities;
- Economic benefits associated with remediation;
- Limited "red tape" made participation simpler; and
- Involvement from the community in clean-up activities was viewed positively.

Weaknesses

- Concern with legal, health and safety obligations constrained the decision-making influence of the NWT Waste Committee;
- There is inadequate funding to clean-up the DEW line stations;
- The role of committees is unclear;
- Funding delays to communities prevented optimal project commencement in the NWT;
- Poor follow-up inhibited planned project operation in some cases; and,
- Funding and transportation constraints limited remote site investigation.

Areas Identified for Improvement

- ***Funding Process***

There was more satisfaction with the funding process in the Yukon than in the NWT. The main criticism in the NWT centred on the lack of input committee members had into funding decisions due to the Department's interpretation of legal liabilities under *CEPA* and its need to focus on hazardous wastes. There was a view expressed that the Yukon region had a different interpretation of liabilities which allowed for the more effective participation of partners in decision-making.

- ***Project Prioritization Process***

Both northern regions are supposed to undertake risk assessments following the Northern Environmental Risk Assessment Strategy (NERAS). The evaluation found that priority determination procedures differed between the Yukon and NWT. Whereas the Yukon region includes all interests in committee decision-making and priority setting, NWT officials reported that a Headquarters directive is followed which puts highest priority on anything that poses risk or contravenes *CEPA* or the *Fisheries Act*. In the Yukon decision process, the ability to manage risk is taken into consideration. There were mixed views on the appropriateness of each region's approach, with the major concern relating to the level of committee consultation.

Project leaders also suggested that hazardous sites generally be given clean-up priority over "eyesores". Viewing the current NWT process as *ad hoc,* they suggested that more efficient or appropriate methods be devised to inventory sites. They added that the Waste Management component should have closer ties with the other components, particularly the CRMP and EAP programs.

- ***Follow-up***

Regional officials considered current follow-up activities to be appropriate. Project leaders identified the need for more follow-up activities. Self-evaluation findings indicated that 82 percent of sampled projects involved some form of follow-up. Most common for clean-up projects was an on-site inspection and final report. Although most clean-up projects involved community discussions or debriefs, site inspection and final report, greater emphasis was desired for completing final work on-site including the possibility of regular site visits by government officials to determine whether work has been completed according to original specifications. It was indicated that, although the most important aspects of the work have been completed, removal of debris such as oil drums and scrap metal and wood often remains.

- ***Research at the community level should be shared with others***

Carcross-Tagish respondents noted that research or experience gathered from projects should be documented and shared with other communities. In this way, mistakes would be diminished and scarce financial resources would not be wasted replicating existing information or experience.

5. CONCLUSIONS

Overall, participants in the Action on Waste component believe their experience to be positive. Project leaders at the community level in particular believe the program to be highly efficacious not simply because local area waste sites are being cleaned up but because the federal government has made a long-term commitment to identifying and cleaning up the North generally. It was recognized by participants that aside from the employment benefits to Northerners, the program was seen to yield many benefits relative to the limited financial and human resources available, not the least of which was the removal of most hazardous waste.

Although there were many benefits associated with the Action on Waste component, some concerns were raised from Aboriginal Partners in particular about their limited ability to assist in priority-setting, especially in the NWT. From their perspective, there ought to be a balance between fulfilling the interests of the Crown and those of Northern communities generally. There was high praise given to the committee system for building partnerships and making decisions collaboratively. However, some thought must be given to the general role of such a committee in light of government fiscal and legal constraints.

There was overwhelming agreement among all participants in the program that the work initiated must continue. Respondents in both territories emphasized that there are many sites on the inventory that have yet to be addressed and that the inventory itself is not always up-to-date. There are also many sites that have not yet been discovered according to elders and other individuals. Clean up of the DEW Line sites, waste disposal sites near communities, and industrial waste left by mining companies and other industries are seen as major elements in the clean up of the North.

Annex D

Action on Water

Table of Contents

Page

1. PURPOSE OF THE ANNEX D-1

2. METHODOLOGY D-1
   Regional Officials Interviews and File Review D-1
   Project Leader Interviews D-2
   Community Visits D-2
   Self-Evaluations and Statistical Review D-3
   Literature Review D-3
   Aboriginal Partners Evaluation D-3

3. ACTION ON WATER PROFILE D-3
   Objectives and Rationale D-3
   Primary Activities D-4
   Structure D-4
   Relevant Legislation D-5

4. ANALYSIS OF RESULTS D-6
   Implementation and Efficiency D-6
   Objectives Achievement D-9
   Continued Relevance D-12
   Improvements and Alternatives D-13

5. CONCLUSIONS D-15

Annex D
Action on Water

1. PURPOSE OF THE ANNEX

The purpose of this Annex is to consolidate and present findings related to the Action on Water component of the Arctic Environmental Strategy (AES). The findings from this Annex are incorporated in the overall evaluation report which is a summary of the AES generally.

2. METHODOLOGY

The sections below outline the methodology utilized to gather evidence related to the Water component overall and describe lines of evidence and various inputs used in formulating findings.

Regional Officials Interviews and File Review

Interviews with government and Aboriginal Partners were conducted in each territory and the National Capital Region. In addition, a review of files was conducted to corroborate interview evidence. Table 1 contains the distribution of officials interviewed who had direct involvement in the Water Component.

Table 1: Distribution of Regional Officials Interviewed

Organization/ Region	NCR	Yukon	Northwest Territories	Total
DIAND	3	1	4	8
Aboriginal Partners	0	1	0	1
Territorial Governments	0	0	0	0
Other Federal Departments	1	1	2	4
Other Organizations	0	1	0	1
Total	4	4	6	14

Project Leader Interviews

A random sample of water quality and quantity projects was selected for purposes of interviewing project leaders. Interviews were conducted in the Yukon and Northwest Territories from December 1995 to February 1996. A total of 32 water component projects were selected for purposes of interview: 16 in each of the NWT and Yukon Territories.[1] Table 2 illustrates the number of interviews conducted by region specifically related to the Action on Water component.

Table 2: Distribution of Project Leaders by Region

Region	Project Interviews	Other Agencies
Northwest Territories	16	14
Yukon Territory	16	2
TOTAL	**32**	**16**

Aside from the 32 project leaders interviewed, follow-up interviews were conducted with other community organization representatives where appropriate. The purpose of the follow-up interviews was to gather additional evidence as recommended by the project coordinator.

Community Visits

Three community visits were conducted during the period December 1995 to January 1996. Interviews were conducted with community representatives including Chief and Council, staff, project leaders, elders, and relevant community organizations. In addition, non-Aboriginal representatives were interviewed for their perspective on local AES projects. Table 4 provides a delineation of interviews specifically related to the Water component.

Table 4: Number of Water Component Interviews Conducted by Community

Community	Number
Fort Simpson, NWT	2*
Cambridge Bay, NWT	8*
Carcross-Tagish, Yukon	7*
TOTAL	17*

* these are approximations, because various community members discussed multiple components

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[1] The sampling frame originally identified 17 projects for interview in the Yukon and 15 in the NWT. However, one Yukon project was administered by DIAND personnel in Yellowknife and therefore considered an NWT project.

Self-Evaluations and Statistical Review

A self-evaluation questionnaire was distributed to all AES officials in the NCR, NWT and Yukon. The purpose of the review was to assess a random sample of projects relative to the evaluation issues. A total of 183 AES projects were selected. Of these, 159 self-evaluations were returned. With respect to the Action on Water component, 30 area specific studies were selected. In addition, one water quality network project was added. In total, 15 projects were examined in the Yukon, and 16 projects in the NWT.

Literature Review

A review of literature related to environmental programs and activities within Canada and other jurisdictions was carried out to provide additional information regarding possible lessons learned, and recommendations for improvements which might be applicable to the AES.

Aboriginal Partners Evaluation

In March of 1995, the Aboriginal Partners prepared an assessment of the Arctic Environmental Strategy. It examined the nature of the Strategy, its components, and the partnership between Aboriginal peoples and federal/territorial governments. Specific findings related to the Water component are included in this assessment.

3. ACTION ON WATER PROFILE

Objectives and Rationale

The main objective of the Action on Water Component is to establish an enhanced water resource management regime in the Yukon and Northwest Territories. This was to be accomplished through the establishment of a comprehensive water monitoring network to determine water quality, to improve knowledge of water flow, and to measure changes in northern waters. In addition to this monitoring network, area specific studies were to be conducted where needed and laboratory facilities were to be improved.

AES Action Plan: Action on Water

Objective: *To establish an enhanced water resource management regime.*

Work Plan:

- Establish a comprehensive water monitoring network;
- Determine water quality;
- Improve knowledge of water flows;
- Measure changes in northern waters;
- Establish Yukon water laboratory.

Result:

- Enhanced protection of northern waters through improved knowledge and decision-making.

The rationale of the program is premised on several concerns. The consultations leading to the implementation of the AES revealed that Northerners were concerned about local water quality and potential health risks associated with drinking water and fish. The 1990 Report of the Auditor-General and the Federal Water Policy (1987) indicated a lack of a comprehensive water data collection program and the need to balance traditional water usage and economic development activities. The federal *CEPA* and Aboriginal land claim settlements require a review of the environmental implications of all Northern development projects.

Primary Activities

The Action on Water Component is comprised of three principal programs: Water Quality Program; Water Quantity Program; and, Laboratory Services. Both the Water Quality and Water Quantity programs involve two main activity areas: Baseline Data Collection or Water Monitoring Networks, and Area-Specific Studies. Both programs require communication and consultation with northern communities regarding their priorities, and reporting results of the program generally. The reporting of results is achieved through the dissemination of an annual report, project summaries as required, project reports, and variance reports. Table 5 provides a synopsis of the overall Water Program objectives by activity area.

Table 5: Water Program Objectives

Element	Objectives
Water Quality Program	* Development and implementation of Baseline data collection or Water Monitoring Networks * Development and Implementation of Area Specific Studies
Water Quantity Program	* Development and implementation of Baseline data collection or Water Monitoring Networks * Development and Implementation of Area Specific Studies
Laboratory Services	* Laboratory Services * Upgrading of Yellowknife laboratory facility * Construction of a scaled-down field preparation laboratory in Whitehorse

Structure

The AES is built on partnerships[2] between Aboriginal organizations, federal and territorial governments and the private sector. Management of the strategy and each component is achieved through a committee structure. The most senior committee is the AES Partners' Committee which involves DIAND Directors at Headquarters and in the two territorial regions and representatives from the five Aboriginal Partners Organizations. DIAND Headquarters provides the administrative support for this committee. Overall coordination of the Water component is the responsibility of the Water Resources Division at Headquarters. Program components are delivered through the regional offices in Whitehorse and Yellowknife.

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[2] Key partners include the five Aboriginal Partner organizations, DIAND regional offices, DIAND headquarters, and several other departments of the federal and Yukon and NWT Territorial Governments.

No committee was established for Action on Water in the Yukon. The component is managed by DIAND in this region in partnership with Environment Canada. An agreement for the water quality network was signed by DIAND, Environment Canada and the Yukon Territorial Government, to provide for the coordinated planning, implementation, and operation of federal and territorial water quality monitoring activities and assessments on a shared basis according to agency mandates and responsibilities.

The NWT Water Advisory Committee has members from the federal and territorial agencies, the Dene Nation, the Métis Nation-NWT and the ITC. This committee is relatively inactive, having met only twice during the history of the AES. Action on Water is managed by DIAND in the NWT in a similar fashion to the Yukon, with a tripartite agreement for the water quality network. Ad hoc committees are formed with communities for specific studies.

Relevant Legislation

DIAND is responsible for allocating and regulating water resources in the Yukon and the NWT. Its mandate is derived from the *DIAND Act* and the *Northern Inland Waters Act* (NIWA) which has been since replaced by the *Northwest Territories Waters Act* and *Yukon Waters Act* (1993). Water management responsibilities are shared indirectly with the territorial governments. These governments have responsibility for wildlife, fisheries, energy management, and recreation and public health. Eventually, responsibility for water management will be devolved to the territorial governments. In addition to DIAND's role, the Department of Fisheries and Oceans is responsible for setting standards for water and fish habitat. The Department of the Environment's interest in water is linked to the *Canada Water Act* which regulates navigation, international and internal water jurisdiction, migratory birds, National Parks, Heritage rivers, and other matters of a national concern.

There are also memoranda of agreement between DIAND, DOE, and each territorial government. The purpose of the *AES Water Quality Network Memorandum of Agreement - Yukon and NWT* is to provide for the coordinated planning, implementation, and operation of federal and territorial water quality monitoring activities and assessments according to agency mandates and responsibilities.

4. ANALYSIS OF RESULTS

Implementation and Efficiency

Implementation Status

Implementation Status of Each Action on Water Element

Water Quality Monitoring Network

Some 81 (61 in the NWT and 20 in the Yukon) water quality stations are currently funded under the AES. The majority of these were not in existence prior to the strategy. The involvement of lay samplers is dependent on the location of the station. Regional officials reported a cutback in expectations when it was realized there would be insufficient resources available to the program. This translated into a smaller geographic coverage than originally envisaged.

Water Quantity Monitoring Network

Regional officials reported that implementation of the water quantity network was scaled down from original plans. Cuts in A-Base budgets, the reprofiling of AES resources, and a DOE decision to go to full-cost recovery for all federal-territorial stations combined to limit the extent to which DIAND could implement its plans. Specifically, a total of 206 hydrometric stations (131 in the NWT and 75 in the Yukon) existed prior to the announcement of the AES and up to 100 additional stations were to be added through the AES. As part of a network rationalization exercise the network was reduced by over 30 stations in 1990. Furthermore, as the AES progressed over five-year period, escalating costs of operating and maintaining the network on a fixed A-based forced managers to further reduce the size of the network. Hence, forty-five AES stations were established, including the re-activation of priority stations that were closed down earlier for budgetary reasons. The point was made that the network becomes thinner the greater the distance from Yellowknife.

Water Quality and Water Quantity Area Specific Studies

Between 1992/93 and 1994/95, 79 water quantity and quality area specific studies were undertaken. Several sources of evidence suggested that water quantity studies claimed a relatively small portion of the budget and relied heavily on partners, including universities, territorial governments, other federal departments, and mining companies. These were seen as valuable in addressing agreement-specific needs identified by communities. The location of some stations in the network was directly related to communities although communities generally did not participate in water quantity studies. It was reported that communities have an interest in and benefit from the results of water quantity studies given their need to anticipate flooding and to understand the impacts of large-scale water usage by mining and other industrial companies. Many of the water quality area specific studies were noted to be in progress. There was a general view that they have been implemented as planned and that they are ongoing as issues arise at the community level. Regional officials estimated that 80% of the NWT area specific studies were complete and 90% were complete in the Yukon.

Based upon a sample of 32 projects, about half were completed and half were still in progress. Most of these projects had completed the data collection/research components of the studies, with final reporting, publications, or final video production as reasons commonly reported for projects still in progress. Field work is continuing for projects involved in time sequence data compilation. Approximately 81 percent of NWT projects were research studies involving field data collection activities, analysis and reporting. There was a high level of collaboration between DIAND project managers and research scientists or experts at agencies such as Environment Canada, DFO, National Hydrological Research Institute, Health Canada, Universities and GNWT Renewable Resources, private enterprises and communities.

In the Yukon, many projects were undertaken due to community requests regarding water quality or were requested by research institutes. Some research studies were initiated for purposes of gathering baseline data for environmental assessments relating to future industrial developments. Studies in the Yukon also involved significant collaboration with a wide range of agencies including other federal departments, universities in western Canada and the United States, mining companies, YTG Communication and Transportation Services and communities.

In the sample, other Departments were involved in over 90% of the projects, with communities and aboriginal organizations involved in approximately 40%. The average annual size of the projects was $58,000. The duration of projects ranged from one year to the full six years of the strategy, with the average length of the projects at just over 2 years.

Upgrading the NWT Laboratory

The NWT laboratory was reported to have been upgraded according to plan and most officials thought that all goals had been achieved in this respect. They saw this laboratory as one of the best in Canada and reported it to be nationally recognized for inorganic contaminants testing.

Establishment of Yukon Laboratory

Implementation of this part of the Water Component clearly deviated from what was initially planned. DIAND officials reported that the original decision to build a laboratory in the Yukon was based on 1989/90 studies which identified the needs together with the availability of AES resources. However, the announcement led to public reaction in the Yukon over the cost-effectiveness of such a laboratory. There was as well considerable reaction from administration officials at Yukon College over placement of the facility. The prevailing political climate was one of government mistrust and cutbacks, and business interests were strongly opposed to the government operating and controlling the facility. Consequently, the Minister of DIAND decided the laboratory would not be constructed and most of the AES money was redirected to the Yellowknife laboratory, CINE and other parts of the water program in the Yukon. The remaining AES funds went to finance a scaled-down field laboratory to meet legal obligations under the *Yukon Waters Act*.

Efficiency of the Component

Management and Administrative Structures

Both regional officials and project leaders viewed DIAND's overall organizational efficiency in water positively, but qualified that view with a desire for an improved interdepartmental coordination. It was noted by some project leaders that rivalry between departments was sometimes noticeable which detracted from overall efficiency. In addition, it was noted that although the various components of the Strategy were "in tune" with each other, improvement could be made to ensuring that all components were fully apprised of each other's activities. One regional official noted that such coordination would have resulted in savings in at least one situation in the NWT where DIAND had sent technicians to a site at which Environment Canada had permanent staff in place operating equipment.

Communications

Most lines of evidence indicated a general view that communication and consultation channels could be improved, particularly between government and communities. Some regional officials wanted DIAND to be more interactive with other Strategy participants. Other officials were critical of the level of information exchange with other federal departments and suggested that lessons could be learned from the Contaminants Component. Some concern was raised among some government officials that the NWT Water Advisory Committee would have facilitated better communications if it had been used more effectively. One view from the Yukon suggested insufficiency in relaying information on water to the public as a weakness of the overall strategy. Project leaders in particular indicated a need to communicate results to communities and stakeholders. They also wanted greater consultation with communities about requirements for information and the format in which it is provided. Aboriginal Partners thought communication between the two territories could be improved.

Clarity of Roles

Most lines of evidence suggest that the roles of participants within the Water Component were considered clear (although limited for DIAND headquarters and the territorial governments). The main exception was the lack of clarity of the Aboriginal Partners' role, and there was support for more thought being given to involving Aboriginal Partners to assist in the Water Program.

Local Staffing

Project leaders indicated there were often problems with turnover of lay samplers. In the Yukon, some communities experienced difficulty with inadequate sampling resulting in the termination of two water quality sampling stations. In the NWT, some communities experienced difficulty recruiting community people that could both perform the job and be sensitive to community issues.

Objectives Achievement

Achievement of the Component's Stated Objectives

There was evidence from all sources that the stated objectives of the Water Component have been achieved. Although government officials indicated that some objectives have been revised such as constructing a field water laboratory in Whitehorse, the goals set by the program have been accomplished for the most part. Some Aboriginal and government officials said that more time is needed to fully realize the goals, particularly of the Water Quality Program. Aboriginal and non-Aboriginal community participants said they were satisfied with the information being received from the program about water quality and quantity.

Achievement of Project Objectives

The objectives of most water component projects addressed issues related to water quality. Based upon a 46 percent sample of area specific studies, more than 75 percent of the water quality projects were initiated in response to community concerns (i.e. examined water sources, prepared educational material, etc.). Approximately 45 percent of water quality monitoring projects were intended to respond to community concerns, and were initiated to monitor water habitat, participate in larger national studies, or were integrated with community waste projects. Approximately 35 percent of water projects monitored both water quality and quantity.

AES officials and community project leaders indicated that more than 95 percent of selected projects for review had achieved their objectives. Based on the findings of the self-evaluation, 97 percent of the sample of 31 projects selected achieved their objectives. More specifically, 61 percent of projects were said to have fully achieved their objectives and 35 percent had partially achieved them. Project leaders in the NWT said that 81 percent of the projects achieved their objectives, and 19 percent said they were partially achieved. In the Yukon, project leaders indicated that 68 percent of projects had fully achieved their objectives and 32 percent had partially achieved them. Two of the three community visits indicated full satisfaction with the achievement of project objectives (the remaining community did not participate in this program).

Intended Impacts

The following is a discussion of the intended impacts of the AES Water Program. All interviews asked for comments on the stated objectives of the program and a determination of whether they have been realized.

- ***Enhanced water resources management regime***

Regional officials and project leaders indicated that the implementation of an enhanced water resource management regime, including passage of the *Northwest Territories Waters Act* and the *Yukon Waters Act,* proceeded as intended. The introduction of a water quality network combined with an expanded water quantity network has significantly enhanced information and management of water resources in the North. Project leaders in both territories indicated that the technical capacity for water management has been significantly improved. All interviews raised a concern that this new regime may be in danger of deteriorating if adequate funding is not available for maintenance.

- ***Improved knowledge of water quality, quantity and flows***

All lines of evidence noted increased knowledge and awareness of problems with water quality, quantity and flows. In the Yukon, project leaders said that the improved hydrometric network is valuable as a source of information regarding the monitoring of new industrial developments such as hydro, irrigation projects, and mining operations. In the NWT, project leaders indicated that new water networks are vital for predicting run-off and predicting potential flood zones. In both regions, government officials and project leaders said that the new networks are very important for improved information. Such information is disseminated to communities when requested. Government officials in particular said that this information has been used to validate government and community claims that the drinking water is safe. In addition, there were views from different sources to suggest that being directly involved in water quality and quantity monitoring is beneficial in terms of accessing current information to support current regulatory processes and initiatives.

- ***Increased understanding of risks to the ecosystem and human health***

All lines of evidence suggest that communities are learning more about the effect of contaminants in water and the ecosystem generally. Studies related to past industrial and mining developments have raised awareness about the negative effects of such projects without proper care. It was indicated that risks to human and marine health are being explored through study of such issues as infective *Giardia* and industrial pollutants. There was general consensus that it is still too early to determine the full of effect of such risks.

- ***Health and community welfare concerns addressed***

Regional officials and project leaders indicated that increased knowledge and understanding about contaminants in water has generated greater confidence in drinking water and quality of traditional foods. Project leaders said that concerns had been best addressed in those communities for which area specific studies had been undertaken. Increased awareness has meant that communities are taking responsibility for identifying contaminants and finding ways to clean lakes and rivers and address pollutant sources. In the Yukon, approximately 500 videos were disseminated to communities to educate and inform residents about the safety of water and traditional foods. In the NWT, an information brochure entitled, *NWT Water Today*, was made available to communities in both English and Inuktatut, and other materials produced for specific studies were distributed to communities through such vehicles as newspaper supplements.

- ***Information base to support Federal Policy commitments established***

This particular issue had very little mention. However, project leaders in the Yukon noted that information gathered from the Water Program has assisted communities to determine whether sewage treatment complies with license requirements. In the NWT, project leaders maintained that improved information has assisted environmental assessment agencies to make better decisions regarding land use. Overall, regional officials indicated that regulations on water and licensing have been tightened.

Other Impacts Identified

- ***Improved relationship with communities***

The opinion was raised that DIAND's relationship with communities has improved. Aboriginal officials indicated that the federal government has learned to recognize the value of traditional knowledge with respect to marine life and are integrating this information with other traditional methods. Regional officials pointed to water quality activities and the usage of lay samplers as having resulted in an increased awareness in communities. In both regions, DIAND worked directly with communities rather than with the Aboriginal Partners. This resulted in some dissatisfaction among the Aboriginal Partners, although aboriginal communities appeared to appreciate this process.

- ***Improved relationship with industry***

All lines of evidence point to better cooperation between DIAND and industry. The mining industry is using the information being generated by the water program given the dependency of licensing on proper water management. Project leaders in particular noted that this relationship benefits Aboriginal communities and municipalities because cooperation has been seen to increase.

Unresolved Needs

- ***Need for Additional Hydrometric Stations***

There was some support, particularly in the Yukon, for additional hydrometric stations. The current network, although performing adequately, was seen as small given the territorial land base. There was acknowledgment that based on population, the 100 stations in the NWT and 70 in the Yukon are appropriate. However, given the degree of development in the North, further expansion is required. DIAND officials said there would always be a need to measure water quantity in the North. It was indicated there is a need for more sites in northern remote areas such as the Arctic Islands. In addition, further quantity and quality area specific studies were desired in remote areas.

- ***Specific community concerns must be addressed as a priority***

Both Yukon and NWT project leaders argued that water contamination is a priority and that greater emphasis should be placed on understanding how contaminants enter and affect the food chain. Communities want to understand the health risks associated with industrial development, airborne pollutants, and natural contaminants in water systems. They believe additional research is needed and that the AES should place greater emphasis on community concerns. To assist in this regard, communities would like more information in a format that is understandable. Reports that reach communities are often laden with scientific language and are not clearly understood or placed in a context whereby specific questions can be answered.

Continued Relevance

- ***Appropriateness of Objectives***

Overall, half the regional officials believed that Action on Water objectives remain appropriate. They pointed to the way in which these objectives tie into contaminants work and ultimately to human health and safety. Community representatives and project leaders indicated that the Water Quality aspects of the program are vital and should be maintained.

With respect to the Water Quantity element, approximately half the regional officials said that the program is relevant. However, a few officials and Aboriginal Partners said more emphasis should be placed on the expansion of the current network rather than upgrading existing sites. It was also indicated that the type of information received from water quantity stations should be revisited to determine whether it is satisfying current demands for other information such as water quality.

Almost all lines of evidence pointed to a demand for greater attention to water quality. According to project leaders, community needs should be given priority given that they are the principal beneficiary of water resources in the North. More specifically, residents wish to know more about the impact of development on water quality and usage. It was suggested that six years of information collected from the water quantity stations should be sufficient to support decision-making. Program officials countered that in most cases, at least 10 years of data are required, and given the extreme natural variability in northern Canada, longer periods of monitoring are often necessary. It was also noted that the implementation of water quantity occurred over a four year period.

- ***Linkages or Overlap***

Evidence from all sources pointed to the beneficial aspects of the linkages between the water quality program and contaminants, wastes and some CRMP projects. Representatives from the water program sit as members or observers on both regional contaminants committees and also on the Technical Committee, and it was reported that discussions take place about where issues have the best fit. Aboriginal representatives viewed the AES an example of the more holistic approach to problems for which they have long argued. Although some elements are still disjoint, such as the linkages of the EAP and CRMP programs, the AES was seen as a promising example of future programs. As stated, stronger links could be forged between the water and contaminants components to determine the health risks of water and airborne pollutants.

2. *Relevance in Light of Land Claims*

Project leaders in both territories believed the settlement of land claims will increase the importance of the Water Program exponentially. Aboriginals believe that development will increase as communities build infrastructure. Such development, including potential industrial investment, will place an increasing burden on water resources. It was noted that, relative to other more populated areas, the NWT had an insufficient number of hydrometric stations. Information generated from these stations is vital to provide feedback on development activities.

Improvements and Alternatives

Strengths and Weaknesses of the Water Component

Strengths

- Environment Canada-DIAND cooperation at the working level within the regions;
- Clarity of the funding process in the NWT;
- Answered specific community needs resulting in a closer link to NWT communities;
- The lay sampler program and involvement of community people in general;
- Amount and quality of information generated;
- AES improved the profile of the Arctic environment nationally;
- Closer ties with communities fostered partnership and work toward common goals;
- Utilization of existing Environment Canada networks.

Weaknesses

- There was a lack of consultation with Aboriginal Partners;
- Communication of results should have been more widespread;
- Administrative overhead was not budgeted in the program for communities;
- There should have been better tracking of budget allocations;
- Limited progress on the Yukon Water Lab was attributed to public pressure;
- Follow-up for water area specific projects was limited;
- DIAND operated too cautiously with the result that A-base reductions directly impacted on AES Water Component programming;
- Infrastructure for long-term monitoring and laboratory analysis is not suitable for short-term funding;
- There was inefficient allocation of funds at the outset of the program.

Areas Identified for Improvement

- ***Funding Process***

Evidence from all sources suggests that the funding process for the water component was appropriate. Water quality area specific studies were community-driven for the most part, and projects were identified on an *ad hoc* basis. It was generally thought that the process was appropriate and that it allowed the flexibility that was needed. Others were critical, however, of what they perceived as a lack of priority setting.

Water quantity projects and area specific studies were identified through a process similar to that for water quality studies. It was thought that the approach was more focussed and there was a tendency to accommodate industry concerns as well as specific community concerns. Generally, interviews in the Yukon and NWT deemed the process appropriate.

- ***Improving Component Linkages***

Almost all sources of evidence support the need to improve linkages between components. There was belief that the link between the water and contaminants components in particular should be bolstered given the desire of many communities to understand the health risks posed by contaminants in drinking water.

- ***Increasing International Research Efforts***

Project leaders and some regional officials indicated that a more coordinated and concerted effort must be made to initiate and conduct international research regarding water pathways and the flow of contaminants. Project leaders and some community representatives said that efforts are being made to reduce pollution from domestic sources and that more must be done to curb contaminants from foreign sources. However, there must be an understanding first about pollutant sources and how they flow through the environment.

- ***Maintaining Funding after Program Termination***

Project Coordinators indicated that some residual funding should be maintained for area specific studies after the Strategy has been completed to allow for some continuation of activities. They argued that this would provide bridge funding for communities while they seek alternative revenue sources.

- ***Maintaining the Network after Program Termination***

It was reported that after 1997 DIAND and Environment Canada will continue to be responsible for the maintenance of monitoring sites. It was suggested that the maintenance of water quality sites could possibly be tied into land claims while water quantity sites would have to be maintained through A-base budgets.

5. CONCLUSIONS

Overall, participants in the Action on Water component believe the program is a necessary part of the federal government's general environmental strategy. However, there was consensus that the program should be amended in a way that places greater emphasis on water quality rather than water quantity. Project leaders and Aboriginal Partners emphasized that the quality of drinking water was of principal importance to communities especially given the increase in industrial activity in the North. They wish to know how contaminants enter and affect the food chain. In addition, they argued that information should be provided to communities in a format that is easily understood.

Some of the main benefits of the AES water program according to all lines of evidence were its facilitation of a general improvement in knowledge about water quality, quantity and flows, and understanding of risks to the ecosystem and human health. To assist in this regard, there was general agreement that the number of water quality stations be expanded to ensure that adequate monitoring is preserved.

In general, the component was seen as a vital link in the Strategy especially as it relates to clean-up of wastes, information for land claims, and monitoring of drinking water quality.

Annex E

Action on Environment/Economy Integration

Table of Contents

Page

1. PURPOSE OF THE ANNEX E-1

2. METHODOLOGY E-1
   Regional Officials Interviews and File Review E-1
   Project Leader Interviews E-2
   Community Visits E-2
   Self-Evaluations and Statistical Review E-3
   Literature Review E-3
   Aboriginal Partners Evaluation E-3

3. PROFILE OF THE ENVIRONMENT/ECONOMY COMPONENT E-4
   Background E-4
   Objectives and Rationale E-4
   Primary Activities E-5
   Structure of the Component E-5

4. ANALYSIS OF RESULTS E-6
   Implementation Status and Efficiency E-6
   Objectives Achievement E-10

      Continuing Relevance of the Environment/Economy Component E-16
   Improvements and Alternatives E-17

5. CONCLUSIONS E-20

Action on the Environment/Economy

1. PURPOSE OF THE ANNEX

The purpose of this Annex is to consolidate and present findings on the Action on the Environment/Economy component for the evaluation of the Arctic Environmental Strategy (AES). Findings from this Annex are incorporated in the overall evaluation report which summarizes the AES from an overall perspective.

2. METHODOLOGY

The following sections outline the methodology utilized to gather evidence related to the Environment/Economy component, and describe lines of evidence and various inputs utilized to formulate findings.

Regional Officials Interviews and File Review

Interviews with government and Aboriginal Partners were conducted in each territory and the National Capital Region. In addition, a review of files was conducted to corroborate interview evidence. Table 1 contains the distribution of officials interviewed who had direct involvement in the Environment/Economy Component.

Table 1: Distribution of Interviews by Region

Organization/ Region	National Capital Region	Yukon	Northwest Territories	Total
DIAND	2	2	6	10
Aboriginal Partners	1	1	2	4
Territorial Governments	0	1	1	2
Other Federal Departments	0	0	2	2
Other Organizations	0	0	1	1
Total	**3**	**4**	**12**	**19**

Project Leader Interviews

A random sample of Environmental Action Projects (EAP) and Community Resource Management Plan (CRMP) projects was selected for purposes of interviewing project leaders. Interviews were conducted in the Yukon and NWT from December 1995 to February 1996. A total of 30 CRMP projects were selected for purposes of interview: 18 in the NWT and 12 in the Yukon. A total of 41 EAP projects were selected for purposes of interview: 25 in the NWT and 16 in the Yukon. Tables 2 and 3 summarize the interviews conducted by region in evaluating the Action on Environment/Economy component.

Table 2: Distribution of Project Leaders: Northwest Territories

Type of Project	Number of Projects	Number of Interviews
CRMP - Successful	14	11
CRMP - Unsuccessful	4	2
EAP	25	16
TOTAL	**43**	**29**

Table 3: Distribution of Project Leaders: Yukon Territory

Type of Project	Number of Projects	Number of Interviews
CRMP - Successful	9	9
CRMP - Unsuccessful	3	0
EAP	16	17
TOTAL	**28**	**26**

Community Visits

Three case studies were conducted during the period December 1995 to January 1996. Interviews were conducted with Aboriginal representatives including Chief and Council, staff, project leaders, elders, and relevant community organizations. In addition, non-Aboriginal representatives were interviewed for their perspective on local AES projects. Table 4 delineates interviews specifically related to the Environment/Economy component.

Table 4: **Number of Environment/Economy Interviews Conducted by Community**

Community	Number
Fort Simpson, NWT	~19
Cambridge Bay, NWT	~18
Carcross-Tagish, Yukon	~13
TOTAL	**50**

Self-Evaluations and Statistical Review

A self-evaluation questionnaire was distributed to all AES officials in the NCR, NWT and Yukon. The purpose of the review was to assess a random sample of projects relative to the evaluation issues. A total of 183 AES projects were selected. Of these, 159 self-evaluations were returned. As Table 5 illustrates, a total of 56 Environment/Economy self-evaluations were received. The number of CRMP projects represents a 100 percent sample. EAP projects selected represent a 10 percent sample.

Table 5: **Number of Self-Evaluations by Region and Program**

Region	CRMP	EAP
NWT	14	17
Yukon	9	16
TOTAL	**23**	**33**

Literature Review

A review of literature related to environmental programs and activities within Canada and other jurisdictions was carried out to provide additional information regarding possible lessons learned, and recommendations for improvements which might be applicable to the AES.

Aboriginal Partners Evaluation

In March of 1995, the Aboriginal Partners prepared an assessment of the Arctic Environmental Strategy. That study examined the nature of the Strategy, its components, and the partnership between Aboriginal Peoples and federal/territorial governments. Specific findings from that evaluation which relate to the Environment/Economy component have been incorporated in this assessment.

3. PROFILE OF THE ENVIRONMENT/ECONOMY COMPONENT

Background

This component is seen as significant, particularly by Northern people who pursue activities that build on the sustainable use of resources and traditional knowledge. In addition, they believe that their communities should be involved in the management of the environment and renewable and non-renewable resources in a manner consistent with both a subsistence and market-based economy. Several themes became evident during the consultations leading to the design and implementation of the AES. These included the need at the community level for participation by residents in resource and environmental management, and using a holistic approach to environmental and resource issues in the North.

Objectives and Rationale

The first three elements of the work plan were implemented in the Yukon and NWT via two programs: the Community Resource Management Program (CRMP) and the Environmental Action Program (EAP). The CRMP program was designed to enable remote communities to initiate renewable resource management activities and facilitate the development of skills and capacity to respond proactively to community resource issues. The EAP was designed to promote cooperative environmental action projects to provide long-term environmental and economic benefits at the community level through short-term projects.

The fourth element of the work plan has resulted in the establishment and maintenance of the Northern Information Network (NIN). The NIN is intended to simplify and facilitate access to Northern scientific and traditional information. It includes a directory of geographic-based information, including computerized maps which can be used by consultants, planners, and decision-makers, and a bulletin board service accessible via the Internet.

AES Action Plan: Action on Environment/Economy

Objectives:

- *To promote economic opportunities for Northern communities via the development and use of traditional values, knowledge and resources; and,*
- *To achieve better decision-making by using both scientific and traditional knowledge.*

Work Plan:

- Assist communities to develop resource management plans;
- Provide training for local people to implement resource management plans;
- Encourage environmental action projects at the community level;
- Establish a northern information network utilizing both scientific and traditional knowledge.

Result:

- Increased economic return to Northern communities, the resolution of environmental issues, and improved decision-making.

The rationale of the component is that approaches must be instituted which provide a balance between economic development and the protection of the environment. The Strategy recognizes the importance of clearly defined community plans for sustainable development as the building blocks for regional, northern and circumpolar environmental strategies.

Primary Activities

The Environment/Economy component consists of three distinct programs: the Community Resource Management Program (CRMP); the Environmental Action Program (EAP); and, the Northern Information Network (NIN).

The purpose of the CRMP is to provide funds to small, remote communities to develop and implement local resource management plans. These plans are intended to find ways to protect the local environment, offer economic development opportunities, and facilitate skills development and the capacity to respond proactively to community resource issues.

The purpose of the EAP is to provide funding to communities for cooperative action projects aimed at developing long-term environmental and economic benefits associated with environmental management, conservation, and monitoring through short-term projects.

The purpose of the NIN is to simplify and facilitate access to Northern scientific and traditional information. NIN facilitates third party access to geographic databases and allows for wider use and application of existing information. The NIN also encourages uniform information gathering, recording and interpretation standards. A second aspect of NIN is the Internet Bulletin Board Service. This provides an opportunity for people to communicate ideas, ask questions, participate in conference sessions and make contact with others interested in AES programs. It was anticipated that the NIN would encourage the establishment of Northern based commercial information services.

Structure of the Component

The CRMP and EAP elements are managed almost completely from the regional offices in Whitehorse and Yellowknife.

The Yukon Environment/Economy Integration component is managed through separate committees for CRMP and EAP. These committees assess priorities, review and assess project proposals and allocate funds. Both the CRMP and EAP committees are chaired by a regional DIAND official, with representatives from the CYFN, YTG, local tourism and conservation organizations and DIAND headquarters. Officials from other federal departments act as advisors.

In the NWT the Environment/Economy Integration activity has active CRMP and EAP committees. Both are chaired by the DIAND region, and draw representation from the aboriginal partner organizations, various departments of the GNWT, other federal departments such as DFO and Environment Canada, and organizations such as the Yellowknife Chamber of Commerce and Canadian Arctic Resources Council. These committees have met regularly and played a major role in assessing and funding proposals.

4. ANALYSIS OF RESULTS

Implementation Status and Efficiency

Implementation Status

Overall Implementation

The Environment/Economy Integration Component was implemented and administered at the regional level with limited Headquarters responsibility. While successes were noted in both territories, regional officials pointed to a smoother committee process in the NWT than in the Yukon, attributing this to having dedicated CRMP and EAP staff in Yellowknife. A decision was taken in the Yukon not to dedicate a DIAND officer to this dossier, relying instead on Co-Op students and administrative staff to provide clerical and other assistance. Hence, no one individual was responsible throughout the entire 'cycle' of budget, promotion, evaluation of applications, screening, briefing of clients, follow-up and presentation to the committee.

Implementation Status of Each Action on Environment/Economy Element

Development and Implementation of Local Resource Management Plans (CRMP)

The evaluation encountered widespread praise for the capacity building which has been attributed to CRMP-sponsored initiatives. Project leaders reported that nine of 14 sampled NWT projects are expected to yield plans. In the Yukon, project leaders believed that 17 of 26 CRMP and EAP projects had resulted in plans, but conceded that these plans were unwritten, more often implied through the actions of the organizations involved. According to the self-evaluation guides, 65 percent of CRMP projects initiated in the NWT had the objective of producing a resource management plan. Yukon project leaders reported that the preparation of resource management plans was the objective of one-third of their CRMP projects. The Fort Simpson case study learned that the Deh Cho First Nation's CRMP project is expected to result in a conservation strategy and a regional land and water resource policy. Some CRMP money was used to finance specific local environmental projects in the absence of a comprehensive plan. Examples include recycling projects, bowhead whale harvesting information, environmental summer camps, window composting and salmon enhancement in the Stewart Valley area. It should be noted, however, that the intent of the CRMP program was to support plans which serve to complement territorial conservation and environmental strategies, land use plans and government economic strategies. A review of DIAND files as of December 1995 encountered no evidence of actual plans having been submitted.

Outside training was not always formal, with project leaders reporting that training was usually self-administered. In any case, it was acknowledged that DIAND staff were generally available to advise or assist when required.

Development and Implementation of Environmental Action Projects (EAP)

The EAPs typically involved short term awareness building, and most are complete with a small proportion ongoing. Given that funds for EAP projects are used on a short-term basis, it is not likely that projects will extend beyond the current fiscal year. The EAP generally assumes that projects will meet their objectives within any given fiscal year. As such the number of outstanding EAP projects is minimal.

Implementation of the NIN

To date, the Northern Information Network has been implemented and is updated regularly. The network has been made available recently on the Internet.

In the NWT, approximately 40 percent of EAP and CRMP project leaders said they were aware of NIN. However, none of them indicated any use of the network. When asked why, almost all could not identify reasons for accessing it. In the Yukon, approximately 25 percent of project leaders were aware of NIN but no one has actually used it. There was some interest expressed in using the Network, but it was generally believed that there was poor promotion of the Network and its benefits.

Contaminants project managers had similar views with almost ninety percent stating they were not users of the NIN. Of this group, approximately one-third suggested that they have no need to get on-line. Almost 20 percent said they would not use it because they are already contributors to the contents of the system.

Most contaminants project leaders who attempted to access the NIN encountered difficulties such as incompatibility with Macintosh equipment or problems with logging on, or simply questioned the timeliness of the NIN's contents.

Most regional officials had heard of the NIN, but very few had actually used it. As a consequence, few were able to attest to its usefulness, but acknowledged its legitimacy as a potentially useful data base in an area where relatively little information has been available historically. Most who had not tried to access the NIN believed that it was too difficult to use, that they would need special training or they could not see where they would have a need to use it. Some regional officials suggested that NIN may have been ahead of its time. It is currently used primarily by universities and researchers in southern Canada and in other countries. Some DIAND officials were confident that use of the NIN would increase with Internet accessibility.

Implementation of Arctic Council Secretariat

An additional element not listed in the work plan, but included in the Treasury Board Submission as part of the Environment/Economy Integration Component, is the Arctic Council Secretariat. The purpose of the Secretariat is to coordinate and promote cooperation among Arctic Nations. The importance of community awareness and involvement in environmental issues will be heightened with the implementation of the Arctic Council Secretariat. Early plans indicate that future environmental strategies for circumpolar nations must be highly integrated with sustainable development strategies.

Canada's Ambassador is leading negotiations for the Arctic Council and the Secretariat had not yet been established at the time of evaluation interviews. Funding identified for the Arctic Council was diverted to the AEPS Secretariat. Current plans are for the Council to assume a broader scope encompassing both environmental and socioeconomic (e.g., transport, trade, sustainable development) issues. The Arctic Council is intended to subsume the AEPS.

Efficiency of the Component

Management and Administrative Structures

Overall, all lines of evidence encountered praise in both regions for the efficiency of the Environment/Economy Integration Component. The addition of dedicated program staff in the Yukon was the main area in which there could have been improved efficiency. Interviews in the NWT questioned the efficiency of having each community develop its own plan rather than using a regional structure. Others would like to have seen more communication of results and strategies among communities. Rather than learning from others' successful experiences, some communities were seen as "reinventing the wheel". One aboriginal partner suggested that the proclamation of the *Mackenzie Valley Resource Management Act* in the middle of the AES caused some confusion for the CRMP.

The NIN was seen by some as needing time to reach those who need it, with several project leaders suggesting that the NIN's profile with the international community was better than it is in Canada's North. Although the network was viewed as being technically sound, questions arose about its value and whether maintenance costs could be rationalized given current usage levels.

Committees and Communication

Almost all regional officials believed that the component's committees facilitated the achievement of objectives. They thought that committee members were acquainted with specific projects and provided valuable technical expertise. Few project leaders, however, had regular contact with committees. In their view, this was not unusual given that the role of committees was primarily to set program criteria and screen proposals. Some regional officials and project leaders commented that there are too few representatives on too many committees and indicated that this problem goes beyond the AES.

All lines of evidence indicated that communication was seen to be adequate. It was suggested that communication had been so successful that there was excess demand for the money available. It was reported that committee members tried to disseminate information in the NWT through newsletters to communities in order to promote the program. Those who thought communications could have been improved made suggestions such as greater communication with community groups via radio and more focus on making results available to participants from other communities.

Proposal Selection Criteria

Most project leaders, including unsuccessful applicants, believed the selection criteria to be fair and appropriate. They indicated that the criteria were appropriately broad in order to ensure community commitment to long-term projects. Over half said implementation could not have been funded elsewhere, and was possible only under this AES component.

Clarity of Roles

There was general agreement that the roles of participants and stakeholders in the component were clear. It was felt that the role of DIAND Headquarters had shifted, appropriately, to the regions over time. One regional official did question, however, whether Headquarters with a larger role would have been able to ensure a higher profile for the program and its successes with senior decision makers. All lines of evidence supported the view that regional DIAND offices were clearly responsible for program implementation and that other participants such as the Aboriginal Partners, the territorial governments and other federal departments should have advisory roles through the committees.

Application Deadlines and Funding

Many EAP project leaders in the NWT reported some difficulty with the timing between application to the program and funding approval and receipt of the money. In their view, the process could have been faster given the limited availability of optimal weather to complete work. In the Yukon, difficulty was experienced with accommodating projects to the amount of money available. In many cases, funding was exhausted before project completion.

Objectives Achievement

Achievement of the Component's Stated Objectives

Overall, regional officials (government and Aboriginal Partners) believed the objectives for CRMP and EAP had been achieved and that the programs had performed better than expected. They believed the management of programs to rest with communities. In some cases, the communities took charge and made good progress. The same officials considered results less dramatic with the EAP, but noted evidence of significant clean-up of garbage and military sites. Given the money invested, these programs were considered success stories. In the NWT, successes were attributed to the committee structure, simplicity of the application process and local control over funds. Officials believed that the program created a management structure where people had ownership over management and overall decisions.

The Aboriginal Partners' Evaluation in particular indicated that "the partners are all in agreement that CRMPs and EAPs have had the greatest beneficial impact at the community level in the overall objectives of the AES". This assessment was offered despite the Aboriginal Partners' view that the Environment/Economy Component received the least funding of all AES components.

Project Profile and Achievement of Objectives: CRMP

The objectives of CRMP projects varied within and between regions. In the NWT, the objective of most plans tended to be the identification and protection of culturally important traditional areas from non-renewable resource development, and to identify options for compromise or prevention of such development. Other projects in the region focussed on capturing traditional knowledge, preparation of courses for students to study resource planning, gathering information on various environmental resources, or preparing plans for land use. In the Yukon, CRMP projects tended to focus on identification and implementation of renewable resources development or the preparation of plans for land use.

DIAND officials and Aboriginal Partners lauded the outreach to communities which occurred under CRMP and EAP. These projects were seen as a significant achievement in the creation of partnerships and the empowerment of communities to manage their own resources. Some CRMP projects were viewed as successful in both regions. Those involved in the administration of this component had a strong sense of great value having been received in terms of capacity building. The Aboriginal Partners' Evaluation stated that "CRMP put a great emphasis on partnerships at the community level for planning resource and environmental management". (p.28)

Project leaders in both regions believed CRMP project objectives to have been achieved in that such projects provided communities the opportunity to think about and initiate processes for short and long-term resource planning. Those in the NWT said that while it is still somewhat early for a final determination, objectives had been partially achieved given that substantial strides had been made to initiate plans. Most Yukon project leaders indicated that, as set out in their contribution agreements, objectives had been achieved in terms of instituting a process for long-term resource planning. Moreover, they voiced approval of the program and saw programs of this type as a step in the right direction.

According to Table 6 below, the self-evaluation guides and interviews with regional officials, a majority of CRMP project activities were considered to be consistent with program objectives. One example, from the Cambridge Bay case study, is the preparation of a management plan for the Freshwater Creek fishery in 1993. The project was developed in response to the community's concern over diminishing Arctic char stocks in the late 1980s. The problem was attributed to the lack of proper resource management planning, and CRMP money was sought to conduct annual monitoring or survey work.

Table 6: Project Leader Responses: Achievement of CRMP Project Objectives

Region	Fully Achieved	Partially Achieved	Not Achieved
Northwest Territories	25%	75%	0%
Yukon Territory	30%	70%	0%

These levels of project success are supported by AES officials via their self-evaluations in which they indicated that 73 percent of projects sampled had achieved their objectives fully or in part. Full objectives achievement was noted for 30 percent of projects, partial achievement for 43 percent, and for 26 percent of the sample, the response was "uncertain".

As discussed in section Implementation Status of this Annex, a number of plans are expected to result directly from AES-funded projects. As demonstrated in section *Intended impacts : CRMP and EAP* the Environment/Economy projects were believed to have realized many of the program's intended impacts. This further supports the conclusion that program objectives have been achieved.

Project Profile and Achievement of Objectives: EAP

The objectives of EAP projects varied widely within and between regions. In the NWT, the objective of most projects tended to be increased environmental awareness through educating residents about the merits of environmental action. The range of specific project objectives covered short-term clean-ups, instituting education programs in schools, preparing education materials, creating short-term work projects on environmental issues and fostering cross-cultural awareness. Similarly, Yukon projects tended to be aimed at building awareness. Specifically, projects focussed on preparing educational materials on such issues as composting, operating summer camps for students, publishing books on the environment of the community, or preparing columns for a local newspaper.

DIAND officials and Aboriginal Partners considered the return on investment in EAP often to be high in spite of limited available funds. The Aboriginal Partners' evaluation gave "...much credit to the program managers for the ease with which program requirements could be met by community interests and the enthusiasm with which the program was advocated to the communities" (p.28). Project leaders in both regions indicated a belief that the objectives of EAP projects have been achieved. In general, they said the greatest benefit of EAP projects was the fostering of community cooperation and awareness. They suggested that few programs could have achieved such objectives with the same financial constraints.

Table 7: Project Coordinator Responses: Achievement of EAP Project Objectives

Region	Fully Achieved	Partially Achieved	Not Achieved
Northwest Territories	80%	20%	0%
Yukon Territory	80%	20%	0%

AES officials via their self-evaluation indicated that most sampled EAP projects had achieved their objectives. Specifically, 72 percent of sampled projects were said to have fully achieved their objectives, six percent had partially achieved their objectives, three percent had not achieved their objectives, and there was no opinion regarding 18 percent of the sample.

In Fort Simpson, the "spring gathering" of elders was revitalized to assist in the resolution of community problems. This fostering of traditional knowledge was viewed positively in the community. The annual gathering, which was re-initiated in 1992, is attended by community members and representatives of the GNWT Department of Renewable Resources. In Cambridge Bay, a number of projects were implemented with an aim to re-introduce members "to the land", build awareness, clean local sites, or hold workshops on various environmental issues. Similarly, residents of Carcross-Tagish introduced a recycling centre in the community, and set up a Wildlife Hotline to assist in the preservation of local caribou.

Intended Impacts: CRMP and EAP

This section discusses the intended impacts of the AES Environment/Economy component. Respondents were asked for comments on the stated objectives of the CRMP and EAP programs and a determination of the extent to which they had been realized. Given the similarity of both programs' intended impacts, they are addressed together in this section.

- ***Community resource management plans and action projects implemented***

All lines of evidence suggested that the CRMP program has proven highly beneficial to communities. Project leaders and case study participants explained that aboriginal communities are being required to comment on a wider array of resource issues with government and private industry. In their view, this program serves the purpose of providing communities with the opportunity to focus attention on specific issues which influence them. In one NWT project, for example, the community attached high priority to protecting the beluga whale. The CRMP program afforded decision-makers and residents the opportunity to find an appropriate solution to preserve this species. In Fort Simpson, the Denendeh Resources Committee received funding over three years to develop a plan for land and resource use. The intent of the project was to develop capacity in the Liidli Kue First Nation to deal with lands and resources issues and decision-making in a way that reflects Dene values, knowledge, and decision processes.

With respect to Environmental Action Projects, short-term plans were developed to address specific community concerns. The Carcross-Tagish community wished to organize a recycling centre. The EAP program provided the means to plan the project and determine how best to respond to residents' needs. In one NWT community, residents used the program to plan for the implementation of a long-term recycling program. Although this has not yet been implemented, the residents understand all the steps involved. Overall, most lines of evidence indicate that the EAP created opportunities to plan for priority community issues.

- ***Training, employment and business opportunities to the North promoted***

Many regional officials believed that activities in the Environment/Economy component had impacts on Northern employment and business opportunities. They considered the primary impact to have been on short term job creation. Equally important, they indicated that skills transfer was very important as it related to community relations with consultants, government, private industry and other residents. Project leaders in the NWT reported that four CRMP projects had each created one or two full-time positions, and one had created three part-time positions. Many projects in the NWT reported that spin-off jobs were created as a result of CRMP projects in particular. With respect to job creation under EAP, NWT project leaders reported that 38 percent of projects created short-term positions. A similar experience was reported in the Yukon. In Carcross-Tagish, for example, the recycling centre employs one full-time staff person and occasional part-time or seasonal workers.

According to AES officials (Self-Evaluation Review), an average of 95 percent of funds spent on Environment/Economy projects remained in the North. Tables 8 and 9 summarize per annum CRMP and EAP expenditures, respectively. Totals are cumulative for both regions.

Table 8: Estimate of CRMP Northern Expenditures and Allocations for Labour

Fiscal Year	# Projects	Annual Expenditures	Average Project Expenditures	% of Funds Spent in North	% of Funds Spent on Labour
1992/93	5	$126,614	$25,323	100%	57%
1993/94	9	$201,591	$22,399	93%	61%
1994/95	18	$516,042	$28,669	89%	52%
1995/96	8	$415,723	$51,965	100%	n.a.
TOTAL	**40**	**$1,300,000**	**$31,499**	**96%**	**57%**

Source: Self Evaluation Guide Findings and Statistical Review, Departmental Audit & Evaluation Branch, DIAND.

Table 9: Estimate of EAP Northern Expenditures and Allocations for Labour

Fiscal Year	# Projects	Annual Expenditures	Average Project Expenditures	% of Funds Spent in North	% of Funds Spent on Labour
1991/92	3	$9,500	$3,200	100%	47%
1992/93	6	$20,600	$3,400	83%	40%
1993/94	10	$42,509	$4,300	74%	36%
1994/95	10	$88,336	$8,800	100%	47%
1995/96	4	$19,285	$4,800	100%	48%
TOTAL	**33**	**$180,230**	**$5,500**	**91%**	**43%**

Source: Self Evaluation Guide Findings and Statistical Review, AES, DIAND, page 5.

- ***Increased access to traditional and scientific information***

Some regional officials believed there had been some impact in this area, but not as much as originally hoped. While the NIN was intended to facilitate this directly, most lines of evidence raised other examples of where communities document traditional knowledge via their elders. According to AES officials (Self-Evaluation Guides), 22 percent of projects identified the recording and application of traditional knowledge. Approximately ten percent of project leaders indicated that projects were intended for this purpose. In Carcross-Tagish, traditional knowledge was recorded regarding the habits of caribou and other game.

Improved decision-making

Several lines of evidence reported improved local decision-making abilities. This improvement was seen as minor by some and as a major achievement by others. Several project leaders indicated there is now more discussion of a wider range of concerns. They also observed that CRMP and EAP are two programs that inject all funds directly into the community, giving them direct, tangible control over the utilization of resources.

- ***Increased awareness of environmental concerns and sustainable development***

All sources for the evaluation encountered a belief that the principal benefit of the Environment/Economy component overall was heightened awareness for environmental issues at the local level. Project leaders and case study interviews indicated that much attention was placed on preparing educational materials for students, newsletters, public information meetings, and general information such as posters and leaflets. Some regional officials and project leaders saw one positive benefit of involvement in this component as communities learning to take charge over their own environmental resources and to "do more with less".

Other Impacts Identified

- ***Increased community involvement and environmental issues resolution***

Increased community involvement in environment issues and their resolution were cited as an important impact. Community involvement was seen as "incredible", but resolution of environmental issues will require a longer time frame before the full impact will be felt. Examples of increased community involvement included: a community improving the habitat of a nearby char stream; communities cleaning up oil drums; and community support of a marine sanctuary.

- ***Partnerships between communities***

Regional officials noted evidence of improved partnerships between communities, especially in the NWT where three communities were seen to be collaborating. Examples cited included Ft. Good Hope and Colville Lake; Ft. Simpson and Jean Marie River; and Ft. Simpson helping Ft. Liard. The basis of such partnerships was transfer of experience, information and skills.

- ***Improvement in the capacity to manage projects***

Some regional officials, project leaders and case study participants observed more astute project management within communities. One NWT community has applied the skills and experience from managing EAP and CRMP projects to negotiate land claims agreements. Some community representatives, noting that project management now rests with the community, said that residents now expect sound management from their decision-makers.

Unresolved Needs

- ***An expanded role for the Component was believed desirable***

Yukon and NWT regional officials would have preferred 100% coverage by the program and noted that many communities have yet to be reached. For example, Inuit communities in Northern Québec and Labrador were unable to access Environment/Economy programs. Some project leaders also noted that certain NWT communities were not able to participate for various reasons and that more time in the Strategy might enable many of them to participate.

- ***Long-term planning and implementation needs have yet to be resolved***

Over half of NWT CRMP project leaders indicated a need for ongoing support to address long-term environmental and resource planning needs. They explained that many community resource plans require ongoing support to implement the plans designed. One community has identified the need for a youth centre and program for young offenders. As well, the Fort Simpson visit noted a growing need for capacity building, particularly in the areas of land and resource management. There is a need to continue to find approaches and mechanisms that reconcile and balance economic and environmental issues.

A few NWT regional officials commented that there was slower progress with respect to projects requiring co-management agreements, because the smaller projects had been more successful. There was a suggestion that more progress could have been made had it been possible to fund communities to full capacity. There was also some concern about the status of CRMP implementation committees at the local level, and what might happen to the new infrastructure if there were no money for implementation after the AES.

- ***A variety of short-term projects have been identified***

Project leaders in both regions explained that there are a variety of projects which have been identified but have not yet been addressed. In the NWT, project leaders highlighted the problem of land fills reaching capacity, the need to implement recycling across both territories, the need to raise awareness for environmental issues particularly in remote communities, and the need to ensure awareness building is ongoing. Over half the Yukon project leaders said there are many unresolved needs including implementation of recycling programs, and raising awareness of environmental and resource management issues. In both regions, project leaders said the program has created an expectation that environmental issues are a priority. In their view, the program should be continued to address this priority.

- ***Inadequate staff for the component in the Yukon***

Project leaders and Aboriginal Partners in the Yukon suggested some shortcomings on the part of the government, such as the lack of a designated person to manage projects and funding rigidities that prevented some simple ways for effective community outreach. Ensuring adequate staff, in their view, would improve program efficiency.

Continuing Relevance of the Environment/Economy Component

- ***Appropriateness of Objectives***

From all lines of evidence, there was consensus that CRMP program objectives were appropriate. This program was valued because it gave communities the ability to better understand land use and to build the foundation for sustainable development in such areas as forestry or minerals. However, much work is left to be done. Interviews pointed to the necessity of developing "community capacity" to assess and develop environmental resource management plans. In some cases, it has taken more than a year to bring communities together to discuss common issues. Thus, workplan objectives have changed over time as the need for a process for achieving long-term plans has taken on greater importance. Those who considered the objectives inappropriate pointed to the creation of too few resource management plans and suggested that communities were given insufficient guidance.

Almost all project leaders, Aboriginal Partners and case study participants praised the EAP. One NWT project leader described it as "high impact, low cost". Others believed that the EAP addresses ongoing needs at the community level. Few other programs give communities the ability to identify and implement solutions they themselves see as appropriate.

- ***Linkages or Overlap***

Regional officials believed that the activities within this component were clearly defined relative to other AES components. The component was seen at times to be an information dissemination vehicle for other AES activities, and there was commentary on the interdependence of CRMP with the Waste and Water components on specific projects. Some regional officials and project leaders said the distinction between this and other components was that Environment/Economy was based on awareness and education while other components are concerned with dealing with damage that has already occurred.

Some overlap was noted between CRMP and DIAND's Resource Allocation Negotiations (RAN) and the territorial EDAs. Similar overlap was noted between Environment Canada's Environmental Partners Agreements and EAP. Both the RAN and CRMP fund co-management initiatives which promote the sustainable use of natural resources. Both programs concentrate on funding recipients who are the primary beneficiaries of resource development, but priorities differ. Therefore, there is more complementarity than overlap.

- ***Implementation After the AES***

As noted, almost all lines of evidence supported the need for continuing the work begun under this component. There was consensus that the AES set the foundation for identifying and planning of projects and support for the need to emphasize implementation of plans and projects following the Strategy's completion.

Improvements and Alternatives

Strengths and Weaknesses: Environment/Economy Component

Strengths

- The community orientation generally was seen as the most important characteristic of the component's programs;
- The development of partnerships, the facilitation of community empowerment and community ownership of projects were regarded as major strengths of the component;
- Low administrative overhead ensured that communities received most of the funding;
- EAP and CRMP created direct employment for communities;
- Fairness, accessibility, and receptiveness of DIAND staff;
- Having two application deadlines for the EAP was viewed as positive;
- Flexibility of the component's programs to consider various types of projects; and
- EAP and CRMP fostered cooperation among various stakeholders.

Weaknesses

- $5,000 cap was insufficient to complete some EAP projects;
- Although some communities would benefit from cooperative programs with others (e.g., recycling), the EAP was not designed to support regional projects;

- EAP application and reporting deadlines do not always coincide with the school year or seasonal activities;
- Long term CRMP funding is not available to ensure project completion and resources are insufficient beyond the Strategy's completion;
- Funding should be provided more quickly; and
- Lack of dedicated staff in Yukon posed some difficulties.

Areas for Improvement

- ***Funding Process***

The CRMP and EAP funding processes were generally seen as appropriate, with praise for the Northern-based aspect and the funding mechanisms which allowed all committee members to participate in decision-making. For requests well beyond the available budget, the semi-annual meetings were seen as affording extensive proposal review, although the time for proper analysis may have been insufficient. There was disagreement over specific outcomes, such as the balance of funding going to schools, and some support for broader coverage.
Many project leaders thought the level of funding, particularly for the EAP, should be increased. Insufficiency of funds was noted to be the reason for an inability to complete some projects, although this could also have been attributable to inefficient management practices. They felt these projects yield much benefit to the community. Fort Simpson EAP funds were seen as seed money, and a need was noted for funding agencies to assist in project completion.

- ***Follow-up***

EAP project leaders in both regions indicated that follow-up was limited. More than half the projects received little follow-up from DIAND. In those cases where there was follow-up, the community requested information, a presentation to Chief and Council or the community, or individuals requested to see the effects of ongoing work. In one-third of cases still ongoing at the time of the evaluation, there was as yet no follow-up from the community or a government agency. All project leaders agreed, however, that more follow-up from DIAND would have been desirable if only to determine that work was proceeding and to offer assistance if required. The Carcross-Tagish community suggested that inadequate monitoring is as undesirable as excessive reporting or monitoring requirements.

Regional officials believed that follow-up on EAP projects had been adequate, as most projects were short term and straightforward. There was less consensus about the adequacy of follow-up to CRMP projects. Adequate follow-up was sometimes associated directly with the individual personnel involved. Several lines of evidence pointed to uncertainty about follow-up. Yukon community representatives and project leaders linked inadequate CRMP follow-up to the lack of permanent dedicated manpower in the regional DIAND office.

- ***Extending and/or Reformulating CRMP***

Some Fort Simpson project leaders and residents suggested that, within the CRMP program, there is a lack of appreciation of the inter-relationship between resource management, land and governance issues. In their view, the CRMP program should be broadened to allow Aboriginal Peoples the ability to study and formulate options with respect to land claims and self-government.

- ***Improved promotion of Environment/Economy programs is desirable***

Evidence from several sources associated less than adequate promotion of the component with the Strategy in general. This was seen by some community representatives as a flaw in the Strategy, and may be attributable to ineffectiveness in reaching smaller, more remote areas. They said that the program should be advertised in ways which are consistent with communication at the community level. It was suggested that ads and presentations on Aboriginal television and radio stations, in-person presentations, etc. are more effective than brochures which come in the mail. Some leaders suggested that elements of communities received information and did not share it with others.

- ***Representation on AES committees should be reviewed***

Some project leaders suggested that the committee membership composition be reviewed. They argued that Aboriginal representation is undergoing much change. In their view, national or regional Aboriginal organizations may not be the most appropriate representatives. Such political realities should be explored more carefully prior to committee formation.

- ***The promotion of NIN should be improved***

As already noted, the NIN has not reached as wide an audience as would have been desired. It was suggested in several lines of evidence that better promotion, coupled with hands-on training, will be necessary if NIN's full potential as an information source is to be realized.

5. CONCLUSIONS

In general, the Environment/Economy component was the most visible element of the Arctic Environmental Strategy. Although prominent as a program at the community level, the component received the fewest resources. However, the program was noted to yield substantial benefits both in terms of building partnerships between communities and government and generating employment benefits.

The Community Resource Management Program (CRMP) was viewed by communities and many regional officials as facilitating the development of plans to deal with government and industry regarding land use issues. Although not all CRMP projects have led to plans, it was generally agreed the exercise is required but that tighter guidelines are needed to ensure the program is being utilized as intended. It was indicated by all lines of evidence that the resources available for planning are diminishing. Community project leaders in particular noted a need to have resources available for implementation over the longer term.

With respect to the Environmental Action Program (EAP), there appears to be consensus among all lines of evidence that while the program yielded "bang for the buck", there is little support for its continuance. It was agreed that long-term solutions are required to address environmental issues. Although short-term programs generate community participation, they do not address larger problems such as waste management or existing site clean-up.

All lines of evidence suggest the Northern Information Network could be useful but that better promotion of it is desirable. There was consensus that NIN's value is in consolidating AES-generated information and its accessibility on the Internet. However, it was observed that some individuals have experienced difficulty accessing the database because of the communications infrastructure in some parts of the North.

All lines of evidence pointed to the successful operation of the committee system under this component. In some cases, respondents held the system up as a model for future programs which require partnership between aboriginal organizations, communities, and government. Cooperation was thought to be positive and information dissemination effective. Community leaders generally felt comfortable with the proposal decision process.